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Alcan Aluminium  
Limited

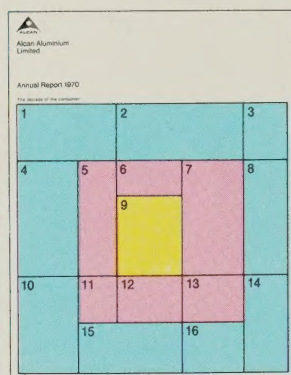
## Annual Report 1970

The decade of the consumer





The Decade of the Consumer is the theme of Alcan's report for the first year of the 1970's. A year ago, the report referred to the decade of the 1960's as a period of fundamental change in Alcan, particularly through its international expansion into greater fabricating activities. Some of the results of those changes are illustrated here as Alcan moves closer to the consumer market and works with its customers to benefit mutually from the Decade of the Consumer. The photographs show the uses of Alcan semi-fabricated aluminum in a hundred typical and diversified items in world-wide markets. The support of many Alcan customers in arranging for photography is gratefully acknowledged.



### Front Cover

1. Canada's Betsy Clifford, 1970 gold medalist at Val Gardena. Aluminum ski poles by Colins Inc., Montreal.
2. Alcan Booth supplied most of the aluminum alloy plate used in the British portions of the Concorde.
3. Alcan painted vertical siding, industrial bronze colour, graces Holy Name Church, Montreal.
4. Brazil builds 1,200 Volkswagen per day using Alcan Aluminio do Brasil products for window and body trim.
5. Early application of aluminum sheet in Mexico City is roofing over numerous food and flower markets.
6. Schoolhouse in the Arctic. Colourful Alcan siding is easy to transport, erect and maintain.
7. Aluminum circles become cooking utensils popular in West Africa for their economy and durability.
8. Transmission line construction costs drop when using lightweight Alcan aluminum guyed towers.
9. Impact extruded aerosol containers, aluminum tubes add attractiveness to convenience packaging.
10. Aluminum light bulb bases undergo final inspection by the millions at a General Electric plant in Ohio.
11. Jamaica's famed Appleton rums, with Alcan pilfer-proof closures by West Indies Metal Products Ltd.
12. Canadian artist George Rackus achieves striking optical effects with his murals of dyed aluminum.
13. Party dress of glittering aluminum foil laminated to fabric reflects avant-garde Canadian fashions.
14. Aluminiumwerke A.-G. Rorschach, Switzerland, is known for the quality of its foil and sheet products.
15. Versatile skin of Canadian camper is heavy-gauge aluminum sheet with durable baked-enamel finish.
16. U.S. Tobacco Company at Greenwich, Conn. features Alcan Anolok® bronze window frames, wall panels.

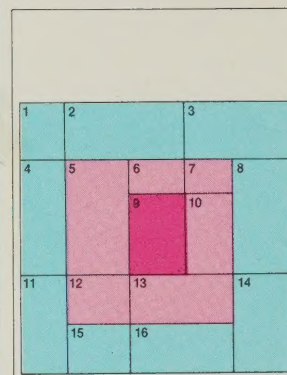
### Page 1

**Top left:** Matte finish of non-specular coated Alcan electrical cables blends more easily into the surrounding countryside.

**Bottom left:** Aluminum forgings from Alcan's plant at Riverside, California, combine highest strength, easy machinability and light weight.

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### Back Cover

1. Sturdy snow tunnels of aluminum by ASV replace earlier timber structures for Norwegian railways.
2. New hangar at Hong Kong's Kai Tak airport is clad with 24 tons of siding from Alcan aluminum sheet.
3. Efficient aluminum receiver of Mossberg 500 APR shotgun is forged and milled by Alcan in California.
4. Floating, modular ceiling at Chicago's First National Bank diffuses light while enhancing decor.
5. Strong, lightweight Alcan aluminum bodies add to payload, reduce maintenance of versatile trucks.
6. Surprise-filled, aluminum foil-decorated piñatas delight Mexican children on festive occasions.
7. Laminated wrapper by Canada Foils protects butter against spoilage and odour contamination.
8. Federal Hotel, Kuala Lumpur, Malaysia, renewed its appearance with anodized decorative façade.
9. Alcan's Porcelloy® is ideal base for porcelain enameling cookware, building panels, reflectors.
10. Alcan's Alflex® housewire has gained acceptance in Canada due to its economy, ease of installation.
11. Alcan Booth supplied extrusions to Clear Span Ltd for this new floral hall in Aberdeen, Scotland.
12. Operating costs of Bombay double deckers are cut by increasing use of Indal aluminum in body.
13. Mexico City Museum of Anthropology. Cantilevered roof of fountain is sheet from Alcan Aluminio, S.A.
14. Headquarters of La Royale Belge, Brussels, feature Alcan Anolok® bronze finish applications.
15. Alcan aluminum extrusions are basic components of Trend 8 luggage by L. McBrine Co. Ltd, Vancouver.
16. Alcan-LSI Hawaiian Homes starts mass production of high quality, moderately priced town houses.

### Page 1

**Top right:** Alcan's Chicago Metallic Division manufactures the widest range of rigid containers in aluminum and other metals.

**Bottom right:** Mid-West Aluminum Corporation, Kalamazoo, Mich., produces intricate aluminum precision extrusions for scientific equipment.



# Alcan Aluminium Limited

## Highlights and Summary of the Year 1970

Alcan's gross revenues rose to new record levels of \$1,389 million, an increase of 11 percent over 1969.

In step with a slowdown in world aluminum consumption, Alcan's consolidated sales, at 1,346,000 tons, were down one percent from 1969.

Due to adverse factors in the second half, net income for 1970 was \$2.08 per common share against \$2.42 in 1969. In addition, an extraordinary gain of 27 cents per share was realized in 1970.

Reflecting Alcan's expansion in fabricating in the past decade, tonnage sales of fabricated products exceeded ingot sales for the first time in history.

Aluminum production of 903,000 tons at Alcan's Canadian smelters was affected by a strike at Kitimat, B.C. but reached a new record of 827,000 tons at non-Canadian subsidiaries and related companies.

### Year ending 31 December

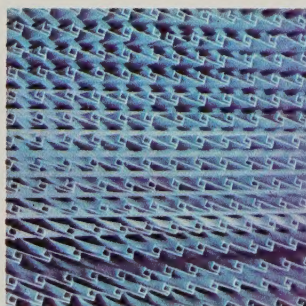
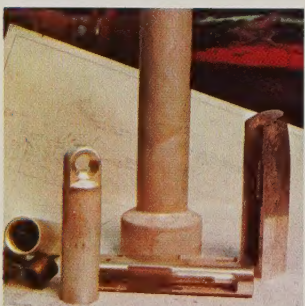
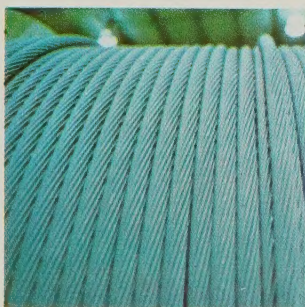
Sales of aluminum products (*tons*)  
Gross revenues (*millions of U.S. \$*)  
Net income, incl. extraordinary profit (*millions of U.S. \$*)  
Profit per common share, excluding extraordinary profit  
Dividends per common share  
Additions to plant and investments (*millions of U.S. \$*)

1970	1969	1968
1,346,000	1,363,400	1,219,800
\$1,389	\$1,251	\$1,029
\$ 79.8	\$ 82.2	\$ 70.8
\$ 2.08	\$ 2.42	\$ 2.12
\$ 1.20	\$1.125	\$1.025
\$ 185	\$ 156	\$ 136

### As at 31 December

Total assets (*millions of U.S. \$*)  
Long-term debt (*millions of U.S. \$*)  
Common shareholders' equity (*millions of U.S. \$*)  
Book value per common share  
Number of common shares outstanding (*millions*)  
Number of common shareholders  
Percentage of common shares held  
    By residents of Canada  
    By residents of U.S.A.  
    By residents of other countries  
Number of employees

1970	1969	1968
\$2,213	\$2,044	\$1,864
\$ 751	\$ 668	\$ 608
\$ 785	\$ 747	\$ 689
\$23.82	\$22.67	\$21.33
32.94	32.94	32.28
75,912	72,381	72,873
40.6%	34.7%	35.9%
47.8%	55.0%	53.6%
11.6%	10.3%	10.5%
66,500	61,900	60,600





# Alcan Aluminium Limited

## Directors Officers

## Honorary Directors

### Directors

**Fraser W. Bruce**

*Montreal — Director of various companies*

**David M. Culver**

*Montreal — Executive Vice President*

**Dr. Donald K. David**

*Osterville, Massachusetts  
Former Vice Chairman of the Board, Ford Foundation*

**Nathanael V. Davis**

*Montreal — President*

**Knut Getz Wold**

*Oslo, Norway — Governor of Norges Bank*

**John H. Hale**

*Montreal — Executive Vice President*

**The Rt. Hon. Viscount Harcourt, K.C.M.G., O.B.E.**

*London — Chairman of Morgan Grenfell & Co. Limited*

**James T. Hill, Jr.**

*New York — Director of various companies*

**Paul LaRoque**

*Montreal — Vice President*

**Paul H. Leman**

*Montreal — Executive Vice President*

**Donald D. MacKay**

*Montreal — Executive Vice President*

**Hon. James Sinclair, P.C.**

*Vancouver — Deputy Chairman of Canada Cement  
Lafarge Ltd*

**Manoel B. de Sousa Pernes**

*Geneva — Chairman of Alcan Aluminium S.A.*

**Hon. John L. Sullivan**

*Washington — Attorney, Sullivan, Beauregard,  
Meyers and Clarkson*

**James A. Dullea**

*Westport, Connecticut*

**Edwin J. Mejia**

*San Francisco*

**R. E. Powell**

*Montreal  
Honorary Chairman, Aluminum Company of Canada, Ltd*

**H. H. Richardson**

*Montreal*

**M. P. Weigel**

*Montreal*

### Officers

**Nathanael V. Davis**

*President*

**David M. Culver**

*Executive Vice President, Fabricating and Sales*

**John H. Hale**

*Executive Vice President, Finance, and Treasurer*

**Paul H. Leman**

*Executive Vice President, Smelting*

**Donald D. MacKay**

*Executive Vice President, Raw Materials*

**Roy A. Gentles**

*Planning Coordinator*

**Paul LaRoque**

*Vice President, Secretary and Chief Legal Officer*

**Holbrook R. Davis**

*Chief Employee Relations Officer*

**Dr. J. F. Horwood**

*Chief Technical Officer*

**Duncan C. Campbell**

*Chief Public Relations Officer*

**A. A. Bruneau**

*Administrative Officer*

**K. C. Bala**

*Assistant Secretary*

**W. B. Findlay**

*Assistant Secretary*

**D. K. Petapiece**

*Assistant Secretary*

**H. L. Carstairs**

*Assistant Treasurer*

**A. A. Hodgson**

*Assistant Treasurer*

**W. E. F. Johnson**

*Assistant Treasurer*

**George O. Morgan**

*Assistant Treasurer, Zurich*

The Annual Meeting of the shareholders of Alcan Aluminium Limited will be held on Thursday, 1 April 1971, at 10:30 a.m. in Place Ville Marie, Montreal.

Terms: In this report, all amounts are in United States dollars and all quantities are in short tons of 2,000 pounds each, unless otherwise stated.

"Subsidiary" indicates a company directly or indirectly more than 50 percent-owned whereas "related company" indicates a company 50 percent or less owned.

The term "Alcan" refers to the parent Alcan Aluminium Limited itself, or to one or more subsidiaries according to the context.

## ALCAN ALUMINIUM LIMITED

1 Place Ville Marie, Montreal, Canada,  
Mail: Box 6090, Montreal 101, Canada.

On pourra se procurer le texte français de ce rapport annuel en s'adressant au secrétariat de la Compagnie, case postale 6090, Montréal 101, Canada.



# Alcan Aluminium Limited

## Directors

1. Group Executive Committee. Five members of senior management, who are also directors of the Company, constitute the Group Executive Committee of Alcan Aluminium Limited. These are, left to right, Paul H. Leman, David M. Culver, Nathanael V. Davis, President, and Chairman of the Committee; Donald D. MacKay, John H. Hale.

- 2. Viscount Harcourt
- 3. James T. Hill
- 4. Fraser W. Bruce
- 5. Dr. Donald K. David
- 6. Knut Getz Wold
- 7. Paul LaRoque
- 8. James Sinclair
- 9. M. B. de Sousa Pernes
- 10. John L. Sullivan



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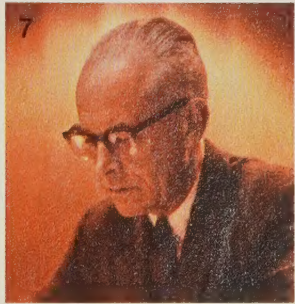
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## Area General Managers

11. The Fabricating and Sales Division of Alcan is served by seven Area General Managers who assist the head of the division in his world-wide responsibilities. Left to right, seated, P. J. J. Rich (Latin America); J. Boetschi (Asia, Far East); David M. Culver, Executive Vice President and divisional head; M. Williamson (Canada); Eric F. West (U.S.A.); Standing, P. John Elton (United Kingdom and Scandinavia); Eric A. Trigg (Europe); John B. Clarkson (Australia & New Zealand).

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**Nathanael V. Davis**  
President

**Report to the  
Shareholders**

The year 1970 started well for the Company with earnings for the first half reaching new highs. The second half, however, brought a general decline in business conditions and other developments for Alcan which more than offset the advances made earlier in the year. The Company's total consolidated net profit in 1970 was U.S. \$80 million as compared with \$82 million in 1969, but the 1970 figure includes an extraordinary gain of \$9 million on exchange revaluation of Canadian dollar working capital. The exclusion of this exchange profit provides a more meaningful comparison and on this basis net income for Alcan common shares was U.S. \$2.08 per share against U.S. \$2.42 in 1969.

The Company's record of growth over the past ten years is shown on page 37. While the 1970 results did not come up to earlier expectations, good progress has been made over the decade.

Alcan's consolidated gross revenues in 1970 were \$1,389 million, an increase of 11 percent over \$1,251 million in 1969. This increase is partly attributable to the consolidation of merged or newly acquired subsidiaries but it also reflects improved price realizations during the earlier part of the year, higher tonnage sales of fabricated products and growth in non-aluminum revenues.

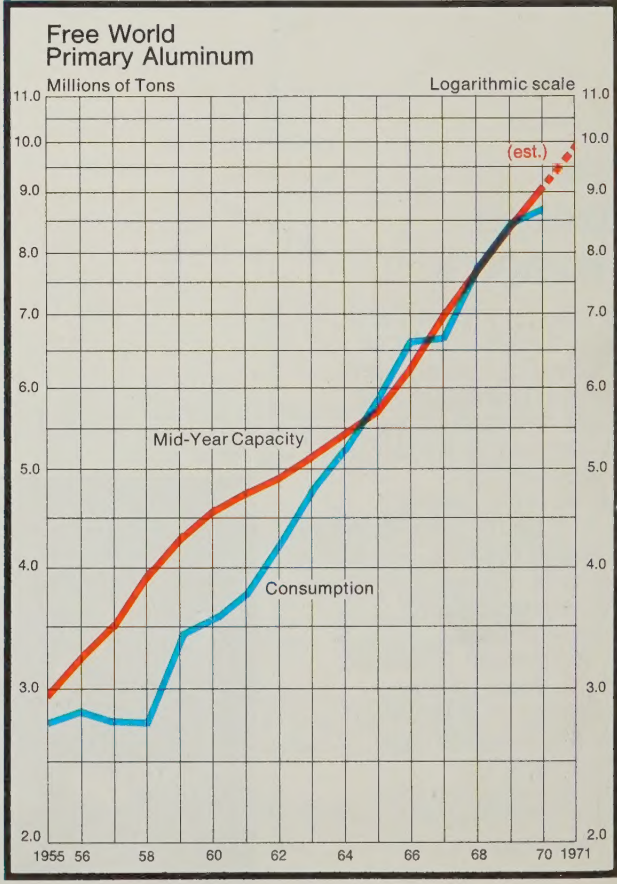
Total aluminum consumption in the non-Communist countries of the world showed a modest net growth over 1969 which we estimate at approximately three percent, the continuing growth in certain areas being offset by a consumption decline of an estimated five percent in the very important United States market. Against this background of reduced growth in consumption, Alcan shipped a total of 1,346,000 tons in 1970, this volume being one percent below the record volume of 1969.

Beginning in the summer, several changes occurred which hurt Alcan's second half results. The Canadian Government's decision on 1 June to allow its dollar to "float" on foreign exchange markets and the subsequent upward revaluation of the dollar caused the non-recurring exchange profit of \$9 million referred to earlier. On the negative side, the higher value of the Canadian dollar has an adverse impact on Alcan's cost structure and operating results. We estimate that every one cent rise in the value of the Canadian dollar relative to the U.S. dollar causes a reduction in Alcan's earnings of between two and three cents per share on an annual basis. This development also caused the Company to

change its financial reporting to a U.S. dollar basis, to give a fairer picture of the Company's world-wide business. This is more fully explained on page 24.

On 13 July the Kitimat smelter went on strike for the first time since the plant opened in 1954. The strike lasted for three and one-half months and involved a production loss of approximately 120,000 tons. Since this event coincided with a general drop in aluminum demand in world markets, the actual sales losses during the strike were held to a minimum, but the shutting down and restarting of the smelter and the dislocations caused by the strike did entail substantial unproductive expenses. By the end of 1970, the Kitimat smelter had regained full operating efficiency, but for commercial reasons the operating rates of all our Canadian smelters are currently reduced to about 92 percent of capacity.

On the raw materials side, bauxite and alumina production in Guyana, Jamaica and Australia were maintained at high levels and progress was made in advancing the major new bauxite developments in Guinea and in the Amazon River region of Brazil. The Company's position in Guyana was, however, put under a cloud when the Government of Guyana in late November announced its intention to acquire a participation in Alcan's bauxite and alumina enterprise in that country. Since early December the Company and the Government have been holding discussions concerning the





implications of the Government's announced position. At this date, we are unable to predict the outcome of the discussions.

In the fabricating sector good volume increases were recorded in 1970. Shipments of semi-fabricated and finished products were 691,000 tons, an increase of 11 percent over the 621,000-ton level of 1969. The year 1970 marks the first one in Alcan's history when fabricating shipments exceeded 50 percent of total consolidated shipments. The main thrust of the Company's expansion program over the past several years has been in the field of fabricating. The results in 1970 seem to confirm that increased fabricating outlets have provided so-called "downside protection" and have proved beneficial to the Company's overall results despite unsatisfactory profits measured solely at the fabricating level.

I am pleased to report that Alcan's continuing work to improve its technologies and products is showing good results, and these improvements are being incorporated in new facilities now coming into production. These developments are discussed in more detail in the Review of the Year section, and I refer particularly to the achievement of new record rolling speeds at the Oswego mill, the introduction of continuous anodizing of strip at Oswego, automatic flatness control at Kingston, Ontario and the acceptance of self-damping conductor as a superior product for high voltage transmission.

Another highlight of 1970 was the official inauguration by the President of India of the integrated "West Coast project" built by Indian Aluminium Company, Limited over the past three years. A description of the activities of this important Indian company is given in the concluding pages of this report.

Alcan's capital outlays for new plant investments in 1970 were \$165 million. For 1971, capital expenditures of the same order are now budgeted. These investments will be spread over a wide range of projects in the raw materials, smelting and fabricating fields, with about one-half of the total devoted to completion of the new smelter at Lynemouth in the United Kingdom and to a major rationalization of Alcan's fabricating operations in that country. This program will involve substantial carrying charges on the smelter until its startup probably late in 1971.

During 1970 Aluminum Company of Canada, Ltd arranged to place new long-term debenture issues of \$100 million in the United States and

\$60 million in Canada. A substantial portion of these funds has been used to repay short and medium-term bank loans. Additional long-term borrowings were made in the U.K., Australia and India to finance local expansion projects. Altogether, long-term indebtedness increased by a net amount of \$83 million.

In summary, after a strong first half in 1970, the demand for aluminum and the prices realized started to decline in most major markets. This downward swing in the second half was accompanied by a progressive upward revaluation of the Canadian dollar. In addition, the Kitimat strike burdened our costs. The combination of these events reduced operating earnings during the second half of 1970 and established an uncertain climate for earnings in the near term. In these circumstances, on 20 January 1971, the directors reduced the quarterly dividend rate from 30 cents to 25 cents to reflect this change and to permit the Company to maintain the forward progress of its capital program on a sound financial basis.

The relationship between demand and supply is shown on the chart opposite. What is not shown, however, is that production facilities in North America are currently operating at below capacity levels. The relationship between consumption and actual levels of production rather than capacity may determine the marketing conditions in the industry in 1971.

Entering 1971, the Company looks forward to an improvement in the United States market which should support a resurgence in demand after a year when demand actually declined. It is hoped that other major markets will improve later in the year. These are the main factors which are likely to affect the Company's results as the year unfolds.

On 30 September, Dana T. Bartholomew retired from active duty as Executive Vice President, Finance after 32 years of enterprising and dedicated service to the Company and was succeeded in this post by John H. Hale. On 16 December, Viscount Harcourt and Mr. Hale were elected to the board to fill the vacancies created by the retirements of Messrs Bartholomew and M. P. Weigel, the latter having retired from active management in 1969. The Company welcomes the two new directors to its board.

*Nathanael V. Davis*

Montreal, 10 February 1971

President





**David M. Culver**  
Executive Vice President

## Fabricating and Sales

**Free World aluminum supplies were greater than market demand in 1970 but some pressure was relieved by voluntary production cuts and by strikes.**

**Alcan's fabricated product sales exceeded ingot sales for the first time in history.**

In 1970 aluminum held its place of commercial leadership second only to steel, its consumption and production having more than doubled in the past ten years. However, reflecting the economic downturns which occurred in nearly all the industrial nations at some time in 1970, the Free World's consumption of aluminum paused noticeably last year in its pattern of growth. The indicated usage of 10,600,000 tons of aluminum in 1970 was only three percent higher than in 1969. This modest increase is in sharp contrast to the 9 and 15 percent gains reached in 1969 and 1968.

While several significant consuming countries showed increases in 1970, these were offset by declines in the largest market, the United States, where consumption dropped about five percent below 1969. In Japan the 1970 growth was apparently 20 percent against the prevailing 20 to 30 percent of recent years. As a result of these and other decelerations in Britain and Europe, the increase for the Free World as a whole held to three percent.

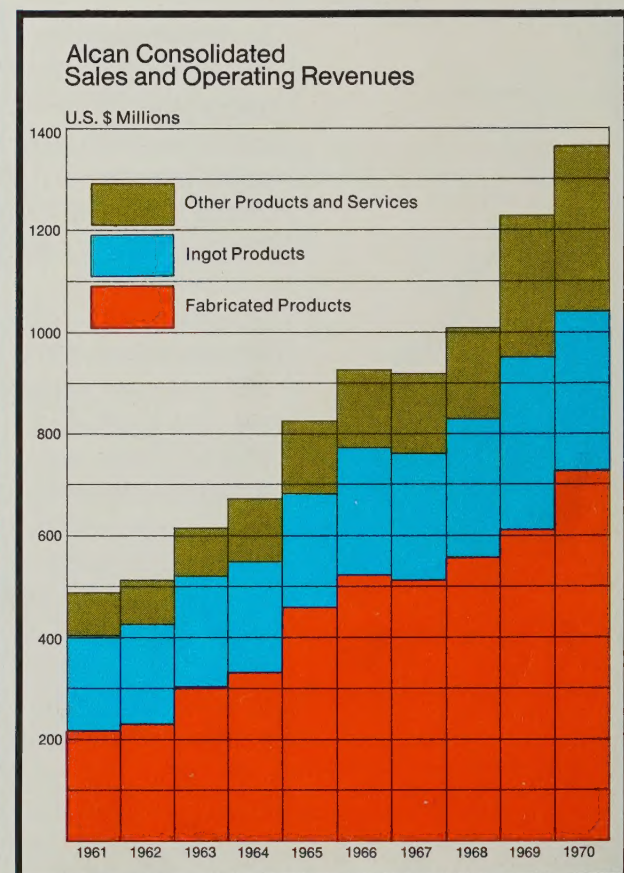
Total aluminum consumption in 1970 was made up of an estimated 8,600,000 tons of primary metal and 2,000,000 tons of secondary metal, against 8,400,000 tons and 1,900,000 tons respectively in 1969. The industry began the year with very low inventories but primary output increased by some 650,000 tons, up to about 8,815,000 tons, mainly through new smelter additions in the U.S. and Japan.

Since consumption increases were small, about half the added production went to restore inventories to normal levels and the remainder went into surplus stocks pressing on the market. These pressures were alleviated to a considerable degree by voluntary cutbacks in operating rates by several producers in the U.S. and by a prolonged strike at Alcan's Kitimat smelter, but they did result in some weakening of aluminum prices in the second half of the year. Alcan's own inventories were at low levels at the opening of 1970, and even lower at the end, after adjusting for mergers and acquisitions during the year.

Shipments of aluminum in all forms to customers by Alcan's consolidated subsidiaries were a total of 1,346,000 tons in 1970, or one percent below the 1,363,400 tons in 1969. The 1970 shipments were, however, boosted to the extent of some 26,000 tons by the creation through merger of an enlarged fabricating subsidiary in the United Kingdom, Alcan Booth Industries Limited. Other acquisitions contributed new revenues although the tonnage involved was not large.

In dollar terms, as illustrated in the chart below, total revenues from all sales and operating sources in 1970 were \$1,368 million, an increase of \$140 million or 11 percent over 1969. Of this increase, more than \$100 million arose in semi-fabricated and finished products. Sales of aluminum ingot products showed a revenue decline of six percent to \$321 million due to a drop in tonnage. Revenues from other products and services (magnesium and other non-aluminum metals, bauxite and chemical products, houses, power sales and shipping services, etc.) grew by \$50 million to \$324 million.

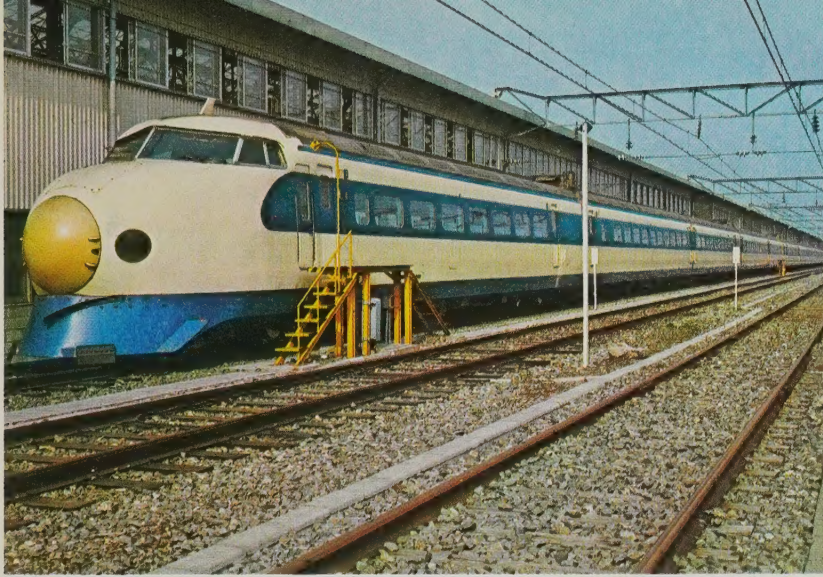
Shipments of semi-fabricated and finished products were 691,000 tons in 1970, an increase of 11 percent over 621,000 tons in 1969, due in part to newly acquired and consolidated companies. However, since ingot sales were only 655,000 tons, this marked the first time in Alcan's history that semi-fabricated products have exceeded 50 percent of consolidated shipments. Shipments of ingot products to related but unconsolidated fabricating companies and to contract ingot customers were another 13 percent of sales tonnage. Thus almost two-thirds of Alcan's metal sales in 1970 were to largely captive outlets, in marked contrast to ten years earlier. Moreover, since the fall-off from 1970's original sales forecasts was mainly in the area of third party ingot sales, it also demonstrates the value of the fabricating business as a downside protection for Alcan in times of recession.





## Alcan Aluminum in Transportation

Further captions on page 39



(a) Famous Bullet train, Tokyo/Osaka. A new model, to operate at 155 mph. on extended line, requires 12 tons of aluminum per car.



(b) Some 1,750 aluminum cars are in service for the New South Wales Railways, Australia. Here, hopper cars carry wheat to the ocean terminal at Sydney.

(c) Spars for Sud-Aviation's SA-330 helicopters are formed from high-strength, close-tolerance alloys produced at Alcan Booth's Rogerstone Works in Wales.

(d) Alcan Booth's plants are the main suppliers of aluminum alloy for Britain's hovercraft. Here, Vosper-Thornycroft VT 1 undergoes speed trials near Southampton.





# Alcan Aluminium Limited

## Fabricating and Sales

Considering all the enterprises in which Alcan has an investment, (both the consolidated subsidiaries and the unconsolidated related companies), their total shipments of aluminum products to third parties in 1970 were close to 2,000,000 tons, or about the same as in 1969. Of the 1970 total, fabricated products represented some 930,000 tons, the first time this level has been reached. In 1969 the corresponding amount was 870,000 tons.

Alcan's 1970 consolidated metal position is illustrated in the chart on page 12. Of the total metal supply available for Alcan's sales in 1970, the largest source was, of course, the Canadian smelter production of 903,000 tons, an amount smaller by 66,000 tons than in 1969. Non-Canadian subsidiaries, mainly in Australia, Brazil and India, produced 134,000 tons. Related companies supplied 164,000 tons of which 52,000 tons were received in alumina barter arrangements and the remainder was purchased principally from A/S Ardal og Sunndal Verk (Norway) and Alcan Enfield Alloys Limited (England). Metal purchases from the U.S. government stockpile were negligible in 1970 while purchases of aluminum ingot from other third parties remained at about the same level as in 1969.

**Growth in aluminum consumption has been noteworthy in most countries, generally about double the rate of increase in Gross National Product.**

The general pattern in aluminum consumption, illustrated on a per capita basis on the chart opposite, shows significant growth in the past decade. In all Free World countries (other than the Eastern bloc), total consumption has nearly doubled from 4.4 pounds per capita in 1960 to 8.6 pounds, despite rapid population growth. In the more industrialized countries — those with higher national incomes and purchasing power — per capita consumption is several times higher. The leader is the U.S.A. at 46.5 pounds per person in 1970, also double since 1960. The dramatic growth in Japan, from 4.3 pounds to 27.4 pounds, is clearly seen.

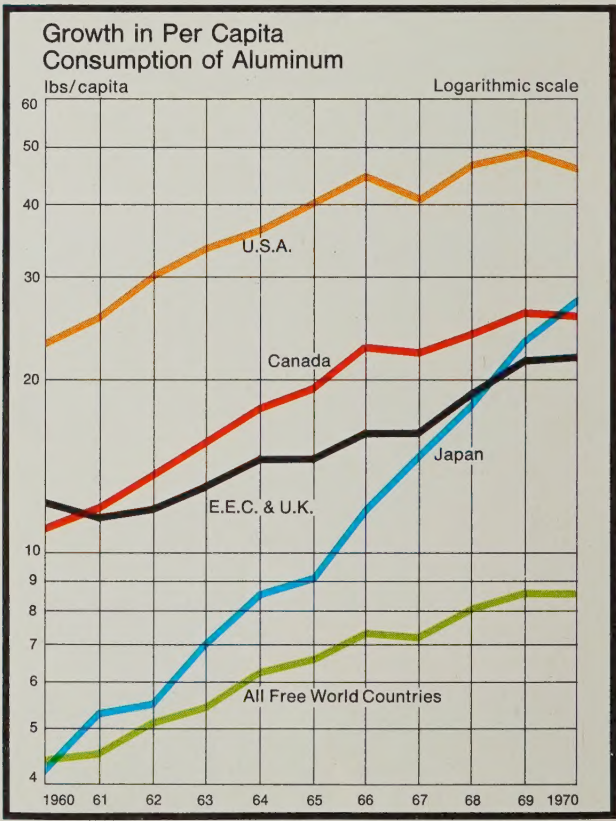
The period of little growth in the U.S.A. since 1966 should not indicate "maturity of market" but rather a temporary change that has corresponded with a set of national priorities that took funds away from housing and transportation, the two major end uses for aluminum. In general, the rate of growth of aluminum consumption in any market is about double the rate of growth in gross national product in real terms. It is therefore expected that demand will turn up with an increase in industrial activity, whether arising from economic recovery, changed national priorities or, in the case of developing countries, the creation of new industrial foundations.

By principal market areas, Alcan Aluminium Limited's consolidated sales of aluminum are as follows, in thousands of tons:

	1966	1967	1968	1969	1970
Canada	137	130	150	152	160
United States	395	332	393	399	357
United Kingdom	160	172	174	191	222
E.E.C.	97	102	121	158	168
All Others	326	368	382	463	439
	1115	1104	1220	1363	1346

The changes in Alcan's sales levels from 1969 to 1970 in general reflect the economic trends prevailing in the various markets. The economic downturn in the U.S. caused aluminum consumption to drop about five percent and Alcan's shipments were off about 12 percent, due to heavy involvement with the market for housing products. As a result of economic factors, and also the Kitimat strike, ingot sales were slower in the U.S. and Japan, and later in the year in Europe as economic indicators turned down. In the United Kingdom, where the economy and aluminum consumption showed little growth in 1970, Alcan's sales were higher due mainly to the inclusion of newly-merged fabricating operations. Sales in Canada were higher largely because of higher sales of transmission lines for new power projects. Other markets such as India, Australia, New Zealand and South Africa showed improvements.

In 1970 Alcan brought close to completion many of the projects undertaken in the past six years to broaden its base in fabricating. In addition to many smaller projects, the principal activity involved large investments in heavy rolling equipment. The Company







## Alcan Aluminum in Transportation

*Further captions on page 39*

(a) Alcan aluminum Nüral cylinders provide edge which contributes to optimum performance and success of race-winning Porsche cars.

(b) HMCS Bras d'Or, Canada's speedy hydrofoil submarine hunter. Alcan supplied aluminum alloy components and technical know-how.

(c) High-strength aluminum frame rails cut operating costs: trucks can carry heavier payloads without exceeding road weight restrictions.

(d) Aluminum grille on a Ranger pick-up truck assembled in the Ford Motor Company's truck plant at Wayne, Michigan.



# Alcan Aluminium Limited

## Fabricating Operations

**Alcan's major fabricating plants, built for future needs, ran at about 65 percent of capacity. Higher utilization will improve profitability.**

**Rationalization of Alcan's facilities in Britain, and completion of smelter, should give the business an "all-new" basis for 1972.**

now owns four major integrated sheet-mill systems strategically located in Canada, the U.S., the U.K. and Germany, so that this costly expansion program is in its final phase.

By mid-1970 Alcan's total effective fabricating capacity reached one million tons a year. However, because economics dictate the installation of sheet mills in units larger in size than required to meet present market needs, sales of fabricated products last year represented only 65 percent use of the installed fabricating capacity. Higher utilization rates in the years ahead will mean better profitability.

In the United States, Alcan Aluminum Corporation brought into production its new high-speed cold-rolling mill and finishing units at Oswego, New York. Rolling speeds in excess of 8,000 feet per minute, believed to be the fastest ever achieved for aluminum or any other metal, have been realized. These facilities are expected to turn out substantial quantities of new products in 1971, reducing the impact of heavy breaking-in costs which were a burden in 1970. During the year Alcan acquired ownership of Chicago Metallic, a producer of flexible packaging and bakery products whose plants will use rising tonnages of aluminum foil from our U.S. mills.

At Arvida, Quebec, good progress was made in the erection of the plant to house new Continuous Cast and Roll equipment. Continuous production of 63-inch wide strip directly from molten metal supplied by the adjacent smelter will commence early in 1971. This innovation should result in significant cost savings, with some reduction of inventory and greater flexibility for the Canadian sheet operations. Progress was also made on new facilities at Bracebridge, Ontario, to permit entry into the market for insulated wire and cable products.

In the U.K., the merger of Alcan Industries Limited with another substantial fabricator, James Booth Aluminium, gave Alcan a 75 percent equity in the resulting expanded Alcan Booth Industries. It also permitted an extensive rationalization of the combined facilities. This will result in closing down large sections of plant, moving equipment, and reducing personnel by 1,800, or 20 percent, all without loss of productive capacity. These steps were deemed essential to successful survival in a strongly competitive Britain, soon perhaps to enter the European Common Market. The heavy costs of this rationalization program (all to be absorbed in 1971), and of the U.K. smelter's carrying charges, will

make 1971 a difficult year for Alcan in the U.K. It should, however, set the business on an "all-new" basis for 1972.

In Europe, a second extrusion press was started up at Raeren, Belgium and a further one authorized for Uphusen, Germany. New anodizing and surface preparation equipment of advanced design was installed in Denmark, and in Germany a major modernization program for the Company's casting and machining plant at Nürnberg also was authorized. New foil rolling equipment was approved for the recently-acquired German foil roller, Alcan Folienwerke GmbH.

In Italy, Alcan has taken over majority control and direction of the sheet rolling and extrusion company, Angeletti and Ciucani Fonderia Laminatoio S.p.A., in which it formerly held a minority interest. In the Netherlands, in January 1971, Alcan concluded an agreement to dispose of its 40 percent interest in a fabricating company, N.V. Nederlandsche Aluminium Maatschappij.

In Africa, the Nigerian sheet plant was restored to the Company following the civil war and, while it has not yet been reactivated, certain units manufacturing finished products have been brought back into production. At Alcan Aluminium of South Africa a new extrusion press and remelt were opened in Capetown.

In Latin America, a major modernization and expansion of the Company's rolling plant in Mexico was completed and extensions to the foil plant were started. An extrusion press was started up near Caracas, Venezuela. Progress was made in extending Alcan's integrated alumina, smelting and fabricating activities in Brazil. A new regional management for the fabricating and sales division was established at the year end. Operating under the name of Alcan Alumínio (America Latina) Limited, its headquarters are in Buenos Aires.

In Asia, Alcan acquired a half interest in an extrusion company in Thailand and installed extruding facilities in Malaysia. New rolling and converting equipment was installed at Osaka, Japan.

In Australia, Alcan acquired Kawneer Australia, a major fabricator of aluminum architectural products. Additional extrusion presses in Sydney and Brisbane were authorized, and a new remelt was started up at the Granville works. In New Zealand, approval was given to expansion of extrusion and foil-rolling facilities.





## Alcan Aluminum in Energy

*Further captions on page 39*

(a) Welding risers to cast aluminum bus conductor to carry heavy electric current for Alcan's new smelter being built at Lynemouth, Northumberland, England.

(b) Alcan Self Damping Conductor — SDC — controls aeolian vibrations, thus permitting higher tensions. The need for fewer or smaller towers cuts installation costs.

(c) Coil winding of Alcan aluminum is essential part of Varian electromagnets used in analytical instrument systems.



(d) The light bulb used by Canadians as an everyday, inexpensive item has threaded base made from aluminum strip.





**Paul H. Leman**  
*Executive Vice President*

## Smelting

**Efforts to improve smelter productivity and to offset cost increases will be made through research and new plant investment.**

**Smelter expansion now under way in several countries will help meet expected increase in sales requirements.**

New record levels of primary aluminum production were reached in 1970 by companies associated with Alcan, despite the loss of 15 weeks' output at Kitimat, British Columbia, due to a strike by members of the United Steel Workers. This smelter, the second largest in the Alcan group, has an annual capacity of 300,000 tons, or 30 percent of Alcan's total in Canada. The financial impact of the strike and subsequent start-up expenses, combined with the upward revaluation of the Canadian dollar, meant a serious curtailment of profits in Alcan's smelting activities.

Primary metal output by all subsidiary and related companies reached a total of 1,730,000 tons in 1970 against 1,693,000 tons in 1969. In these totals, Aluminum Company of Canada's production was reduced by the Kitimat strike to 903,000 tons, some 120,000 tons below the original plan for 1970 and also below the 969,000 tons produced in 1969. Output by smelters outside Canada was 827,000 tons, the increase of 103,000 tons from 1969 occurring mainly in Australia, India and Norway.

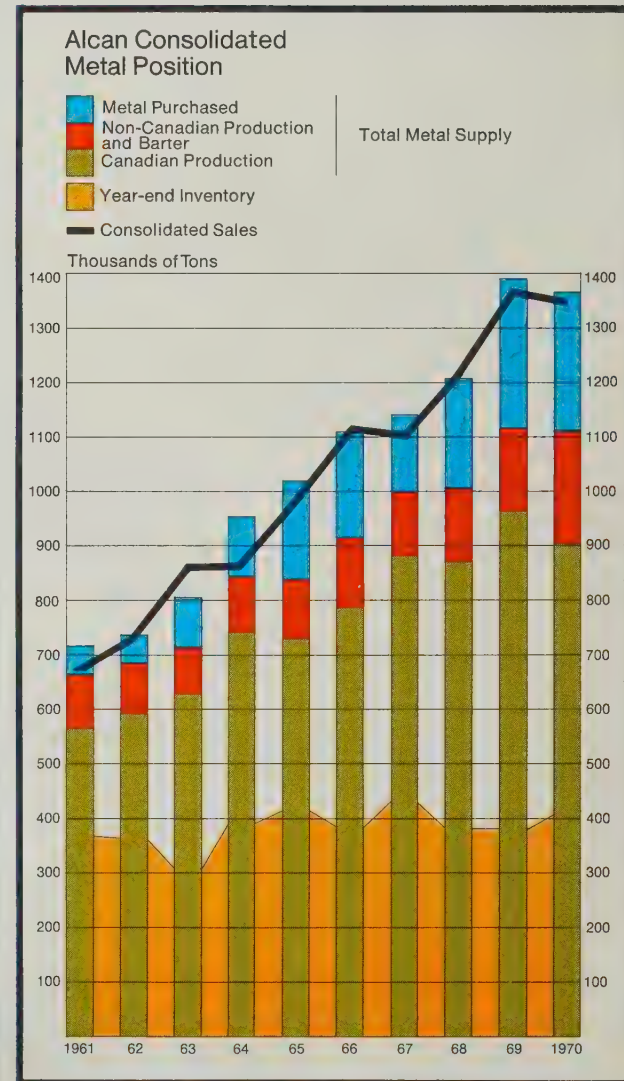
In the Canadian plants, a new three-year contract with the United Steel Workers was signed at Kitimat in October, following the prolonged strike, and provided substantial wage increases. At the Company's eastern smelters, the existing contracts with the National Syndicates of Aluminum Workers will expire in December 1971. In all the Canadian smelters, efforts will be continued to offset inflationary wage increases and other cost increases through improving productivity. Such efforts involve substantial heavy investment in new equipment as well as larger research and development expenditures.

Following the Kitimat strike, production has been gradually resumed. Currently, Alcan's Canadian smelters are operating about eight percent below their rated capacity of 1,035,000 tons a year.

Within the consolidated subsidiaries, smelter construction or modernization plans as now authorized envisage the addition of some 170,000 tons of smelter capacity by the middle of 1973, principally in the U.K., India, Brazil and Australia. From these expansions as planned, the quantities of metal available for Alcan's consolidated sales activities in the next two or three years are expected to increase by about eight percent per annum, or sufficient to meet "normal" growth if it materializes. In the United Kingdom, the completion of Alcan's new smelter at Lynemouth, near

Newcastle, has thus far been handicapped and delayed by work stoppages among construction workers. Erection of the coal-fired power plant has been particularly hindered. As a consequence, the starting of the first potline of 67,000-ton capacity is expected to be delayed until the closing months of 1971 and the early months of 1972. The second potline of equal capacity is now scheduled to enter production later in 1972. Capital costs for the smelter have been re-estimated upwards and the burden of interest charges on the construction-in-progress will adversely affect Alcan's U.K. financial results for 1971.

At Alcan Australia Limited, the smelter at Kurri Kurri in New South Wales had its first full year of operation in 1970. Expansion of this plant from 40,000-ton to 50,000-ton capacity will proceed as justified by Australian market conditions; further expansion to 100,000 tons will be undertaken later, as required by export demand in the first instance.





**Alcan Aluminum  
in Architecture**  
*Further captions on page 39*

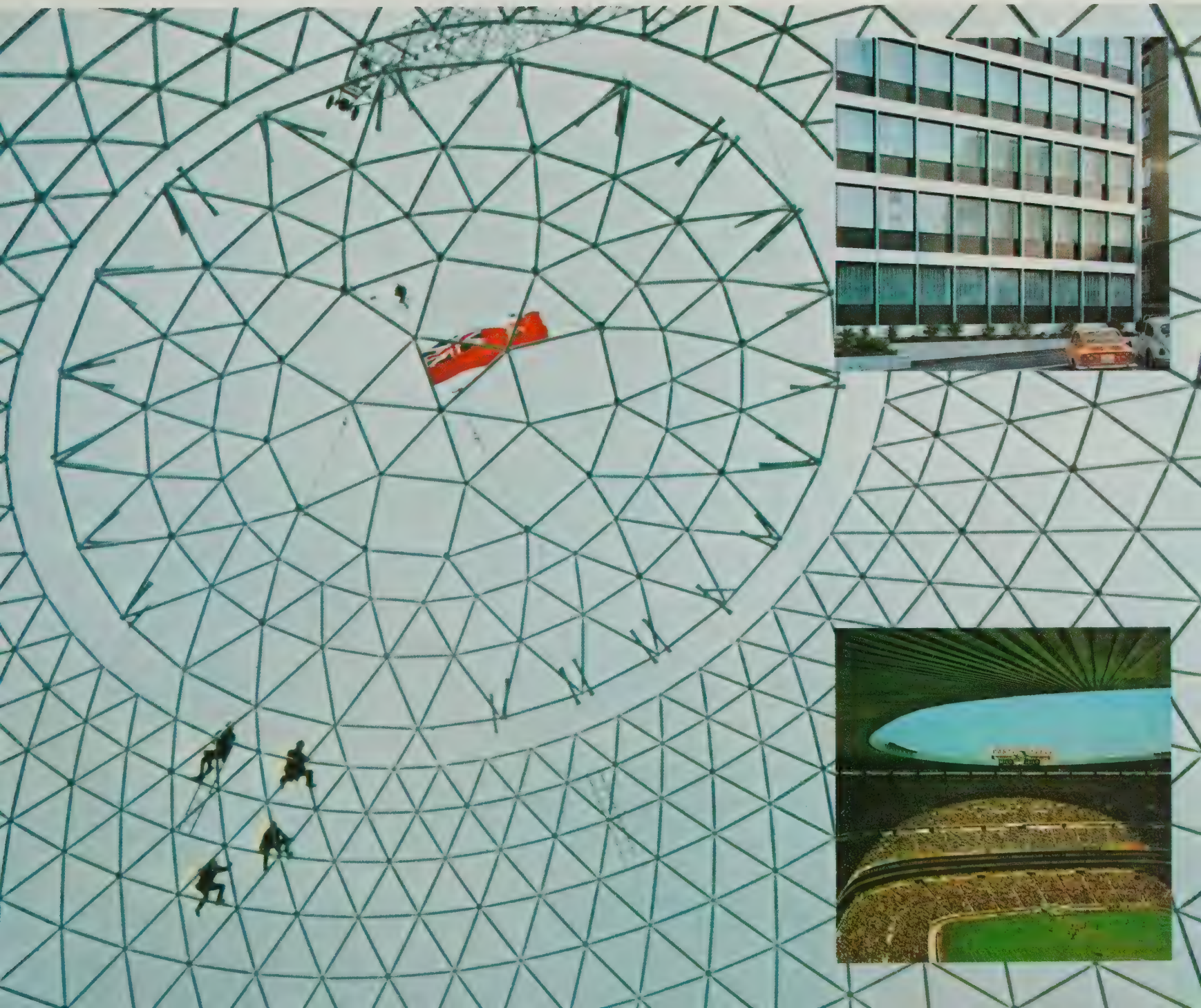
**(a) Toronto's Cinesphere in Ontario Place at the Canadian National Exhibition is enclosed in a triodetic space frame of Alcan aluminum tubing.**

**(b) Bangkok's prestigious Dusit Thani Hotel, far right. Teak carvings, rich silks and warm gold-anodized aluminum contribute to attractive appearance.**



**(c) Office building in Zurich. Bronze colour Anolok® finish of window frames and spandrels provides pleasing contrast to clear anodized aluminum curtain walls.**

**(d) Mexico City's Azteca stadium holds 100,000 spectators. Shade is provided on a grand scale by circular roof of Alcan aluminum sheet.**





# Alcan Aluminium Limited

## Smelting

**Smelter affiliates in India, Brazil, Norway and Japan are involved in construction or modernization programs.**

**Effluent control has been a matter of concern and heavy expenditure at Alcan smelters for many years; further work is required and being done.**

Indian Aluminium Company's new smelter at Belgaum, Mysore, which started operation in 1969, reached its initial production goals in 1970. The plant was officially inaugurated by the President of India as described in the closing pages of this report. Expansion of this smelter from 33,000 tons to 44,000 tons is under way.

In Brazil, a subsidiary, Aluminio Minas Gerais S.A. is proceeding with construction of a new smelter of 11,000-ton initial capacity at Aratu, near Salvador, in the northeast region. With its start-up planned at the end of 1971, and with the other smelter in Minas Gerais also being strengthened, Alcan's authorized smelter capacity in Brazil to serve the domestic market will reach 42,000 tons. The Aratu smelter is designed for considerable augmentation when needed.

In Norway, A/S Ardal og Sunndal Verk (ASV), owned one-half by Alcan, experienced hydroelectric power shortages in 1970, with the result that production was approximately 285,000 tons or slightly lower than first planned. Under its agreements, Alcan received a large proportion of this production in exchange for alumina or through purchase. The capacity of ASV's smelters was increased by some 30,000 tons to a total of 320,000 during 1970. Expansions through modernization to add a further 50,000 tons will follow.

In Japan, Nippon Light Metal Company, Ltd, in which Alcan also owns a one-half interest, is completing the second potline at its new smelter at Tomakomai on the northern island, Hokkaido. This facility of 80,000 tons is now entering production by stages. When this is completed in 1971, followed this year and next by two smaller potlines at Niigata on the main island of Japan, Nippon Light Metal's smelter capacity will reach a total of 420,000 tons, from 250,000 tons today.

Other smelter companies in Sweden and Spain, in which Alcan has a minority interest, completed expansions of 20,000 tons each in 1970.

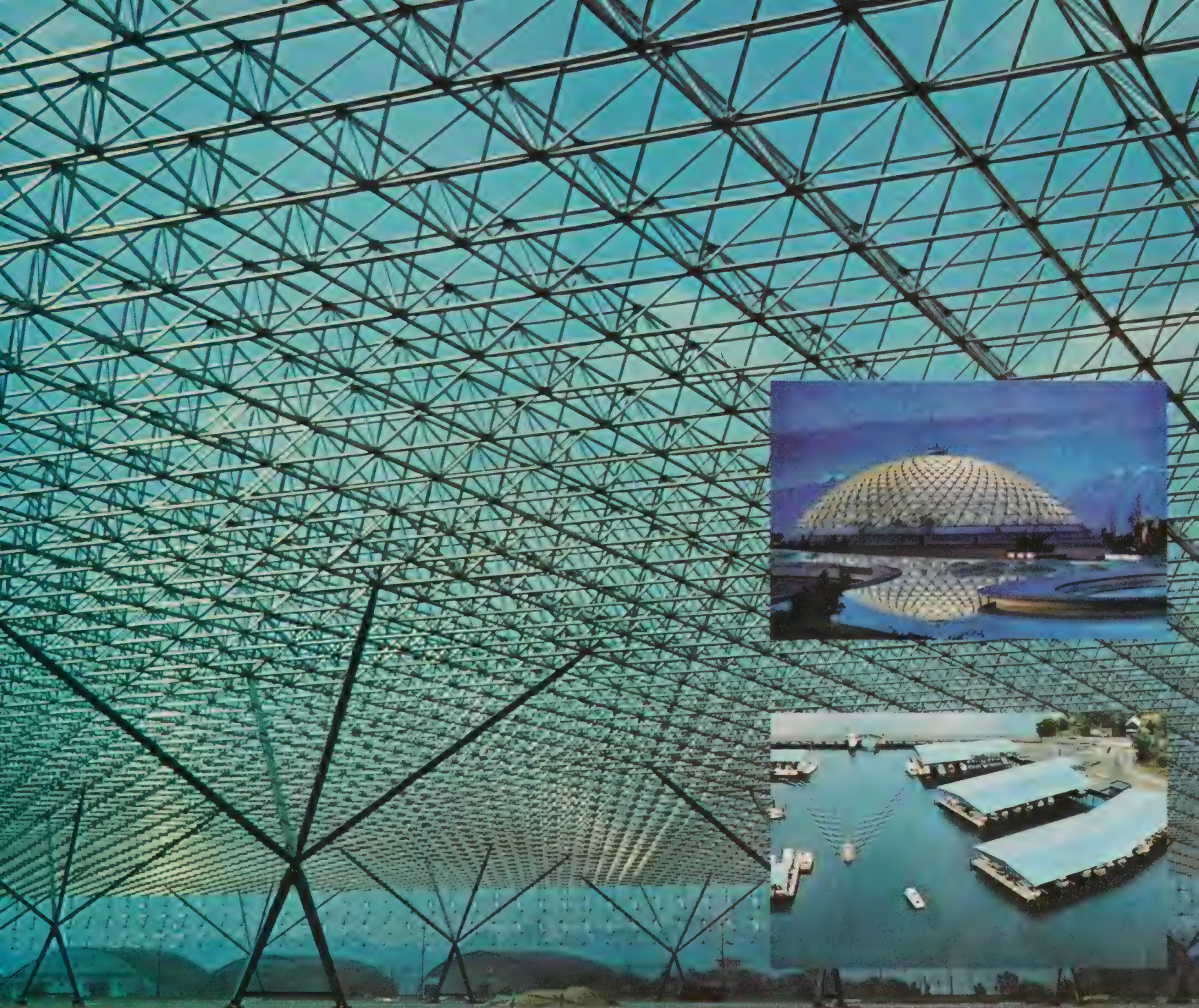
In all smelter operations, the problem of effluents is receiving constant attention of managements, as it has for many years. In newer smelters, modern design technology permits adequate control of effluent gases. In older plants, where Alcan has invested an estimated \$60 million on pollution control over the past 30 years, further work still remains to be done and heavy investments made. Outlays for pollution abatement will be even

heavier in 1971 than in 1970. Increased knowledge and better technology will help to justify these larger efforts.

To the extent that Alcan's smelter interests are based on hydroelectric power (100 percent in Canada, Scandinavia, India and Brazil) the possibility of environmental pollution from energy generation is, of course, eliminated.

The production and sale of "chemical products", as derivatives and by-products of the alumina and smelter operations, provided good profits in 1970 and these are expected to improve with further effort and investment.





## Alcan Aluminum in Architecture

Further captions on page 39

(a) World's largest aluminum structure, 780 ft.-long roof of Parque Anhembi hall, São Paulo, was raised in place as one single unit.

(b) Bloedel Conservatory, Vancouver's Queen Elizabeth Park. Exotic botanical garden is under tridetic structure of aluminum tubes holding transparent panels.

(c) Some 150,000 sq. ft. of Alcan aluminum sheet protect new dockage area of the Sassafra Boat complex, at the head of Chesapeake Bay.

(d) King Arthur Park community of mobile homes at Riverside, California. Alcan's numerous mobile home accessories provide harmony yet preserve individuality of homes.







**Donald D. MacKay**

*Executive Vice President*

## Raw Materials

**Alcan's activities and plans for bauxite procurement extend to several countries possessing important ore reserves.**

**Additional investments in alumina facilities in Jamaica and Australia have augmented alumina supplies.**

In 1970 Alcan and its associated companies were engaged in bauxite development work in nine countries — on every continent except North America. In the aluminum industry as a whole, a period of strenuous development of bauxite and alumina sources continued.

The basic ore in general use, bauxite, contains from 40 to 60 percent aluminum oxide or "alumina". Thus it requires about four tons of high grade bauxite to produce two tons of alumina which, in turn, will yield one ton of aluminum metal.

Based on an estimated production of almost 9 million tons of primary aluminum in the non-Communist world in 1970, the usage of bauxite is estimated at between 40 and 45 million tons. Known bauxite reserves in the world are adequate to support aluminum production at present and projected operating rates. Alcan's own procurement plans involve all the principal areas of significant reserves.

Under the direction of the Raw Materials Division, Alcan's activities in 1970 were directed to the supply of bauxite and alumina for its own principal smelters in Canada, and for smelting associates and contract customers in Scandinavia and other areas. In addition, other affiliated aluminum companies in India, Brazil and Japan have organized their own bauxite and alumina supplies, often with geological, technical and supply services from Alcan.

For its original Canadian smelting activities, Alcan's main source of bauxite for many years was in Guyana where some one to two percent of world reserves are located. In the early 1950's, Guyana supplied as much as 100 percent of the ore for Alcan's alumina plants at Arvida, Quebec. Later in the 1950's Alcan developed other sources of bauxite and arranged bauxite purchases to supplement the Guyana supply to Arvida.

With the construction of the new smelter at Kitimat, British Columbia, between 1950 and 1954, Alcan's initial development of Jamaica's bauxite also got under way. First one alumina plant in 1953, and then a second in 1959, were completed by Alcan Jamaica Limited. Continuing expansion and modification have brought these plants' present total capacity to 1,225,000 tons of alumina per year. Their actual production in 1970 was 1,180,000 tons.

In the early 1960's Alcan became associated with the development of the large and strategically-located bauxite resources of Australia,

both through its own activities and in association with others. The Company became a partner with other aluminum producers in the establishment of Queensland Alumina Limited which in early 1971 is bringing its alumina plant at Gladstone, in Queensland, to an expanded capacity of 1,428,000 tons per year. Further expansion now under way will make the Gladstone alumina plant, in the summer of 1972, the largest in the world with a capacity of 2,240,000 tons, all based on Queensland bauxite supplied by one of the partners. Alcan's alumina receipts from the Gladstone source were 240,000 tons in 1970, and its nominal share of output will reach 480,000 tons by 1973. Alcan has also undertaken its own bauxite exploration work in Australia and holds important bauxite mining rights in Queensland.

Alcan's total alumina requirements in 1970 were about 3.1 million tons for its own smelters and contractual commitments. Of this total, some 40 percent was produced in its Canadian alumina plants, 38 percent in Jamaica, 11 percent in its Guyana alumina plant, eight percent from the Australian source and three percent from other sources.

Bauxite supplies for Alcan's alumina plants in Quebec have undergone significant changes in recent years, and further changes have been anticipated. As mentioned above, Demerara Bauxite Company in Guyana had been the principal source but the economics of this supply have been altering in the past decade as mining costs have substantially increased with deeper mines and greater weight of overburden. Fortunately the operations have remained economic, largely through Alcan's development of methods of producing a specialty product known as calcined bauxite. This product does not enter the aluminum industry but is sold by Alcan to the refractory and abrasives industries through marketing relationships developed on a world-wide basis. This product, higher in value than metal-grade bauxite, has reached such significance that in 1970 Demerara Bauxite Company's sales revenues were 36 percent from calcined bauxite, 42 percent from alumina and 22 percent from some 1.4 million tons of metal-grade bauxite sold to Canada.

Over the past several years, Alcan has been involved in bauxite development in several other countries in its program to expand and diversify its sources. In the Boké region of the Republic of Guinea, West Africa, construction is proceeding on a new





## Alcan Aluminum in Packaging

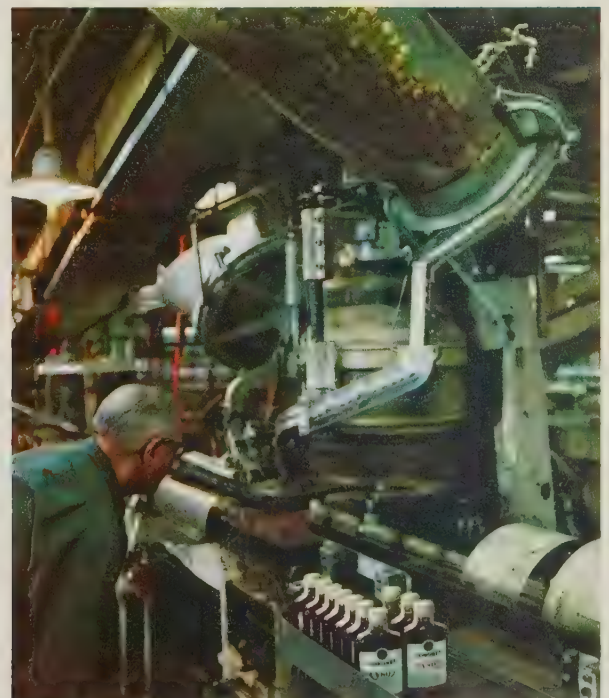
Further captions on page 39

(a) Painted aluminum sheet provides pilfer-proof, attractive, sanitary caps for wide range of Italian-Swiss Colony California wines.

(b) Easy-open soft-drink can ends of aluminum are made from canning sheet produced in Kingston, Ontario.

(c) Laminated and printed aluminum foil pouches are among varied types of packaging articles manufactured in Canada by Alcan Packaging.

(d) Coronet V.S.Q. Brandy is bottled at Schenley's Lawrenceburg, Indiana plant, where strips of Alcan painted aluminum sheet are converted into pilfer-proof, embossed closures.





# Alcan Aluminium Limited

## Raw Materials

**New export bauxite projects in Guinea and in the Amazon River region of Brazil will bring important new supplies to Alcan.**

**Guyana government's proposals to acquire participation in Alcan's operations are under discussion.**

bauxite development which will be one of the largest in the world. With the Guinea government participating and building the infrastructure, and with financing by the World Bank and other international agencies as well as by private borrowings, a consortium of North American and European aluminum producers is undertaking this project. Estimated total costs of the project are in the vicinity of \$260 million.

Alcan's participation in the Boké project is 27 percent. Construction of rail and port facilities in Guinea is well advanced and mining installations are being built, looking toward first production in about two years. Bauxite shipments from Guinea to the sponsoring partners will rise gradually from a first year target of 5 million tons to an annual level of nearly 10 million tons in the sixth year of operation.

It is planned that Alcan's share of the Guinea bauxite production will be used initially in its Quebec alumina plants. However, Alcan intends that later on the bulk of the bauxite will be utilized in a new alumina plant required by 1976 to serve expanding smelter capacity. Studies thus far indicate that the most economical site for such a plant would be in the European area.

In Brazil, in the Amazon River basin, as a result of extensive geologic exploration over a period of eight years, Alcan has confirmed high grade bauxite reserves of major significance. Mining and development rights have been granted by Brazilian authorities, engineering is well under way and construction of a new bauxite complex is planned to commence in 1971. Loading and storage facilities at riverside will permit the shipment of an initial one million tons of bauxite per year on ocean-going bulk carriers of up to 45,000 tons. Initial capital cost is estimated at \$45 million and expansion to two million tons or beyond is estimated at only one-third of the first cost per ton. The Amazon bauxite is of a type and quality well suited to treatment in the Company's Quebec alumina plants.

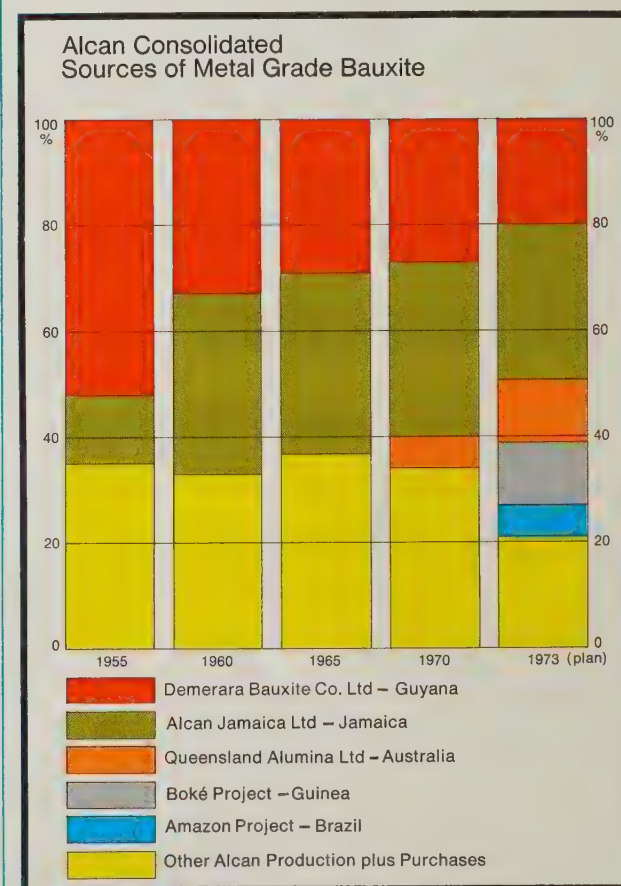
Reverting to Guyana, a new element was introduced into corporate planning when early in 1970 the Guyana government announced its intention to acquire a "meaningful participation" in the bauxite industry. Later, on 28 November, the Demerara Bauxite Co. was notified of the Government of Guyana's desire to participate in its undertakings on certain specified terms. On 7 December, representatives of the

Government and of the Company began a series of meetings in Guyana concerned with an analysis of the implications of the Government's proposals. After two recesses, these talks resumed again on 9 February and were still continuing when this report went to press. Meanwhile, Demerara Bauxite Company's operations in the early weeks of 1971 were at high levels.

### *Alcan's Shipping Activities*

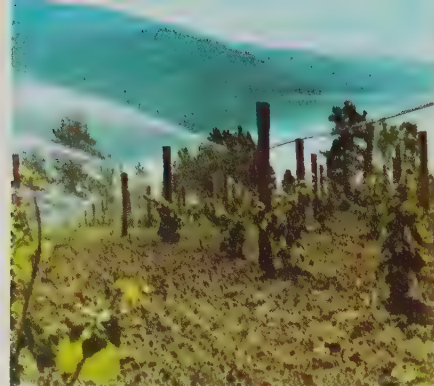
The Alcan group's shipping activities consist of general and bulk trades between Canada and the Caribbean; general and bulk trades linking the Caribbean and Europe; operation of bulk carriers in world-wide trades; operation of a transfer station in Trinidad and, finally, a consulting organization offering ship brokerage, insurance and research services.

The effects of the extremely high vessel charter market on Alcan's 1970 shipping costs were minimized, as substantial coverage had been obtained before the rise in the market. As a result, the shipping group, as a whole, had a profitable year. The construction of two ice-strengthened bulk carriers, for operation to the Saguenay River of Quebec on a 12-month basis, was nearly complete by the end of 1970. Use of these ships during future winter seasons will reduce the Company's requirements for high inventories of bauxite and alumina in its Canada/Caribbean system.





(c) Grape vines in the Okanagan Valley of British Columbia depend on Alcan's aluminum sprinkler irrigation systems for top yield and excellence.



(d) Experienced personnel, automated production lines and aluminum containers assure continued quality of frozen baked goods from the Kitchens of Sara Lee.



## Alcan Aluminum in Food Production

Further captions on page 39

(a) Montreal owes part of its reputation for "joie de vivre" to its fine cuisine, well served by aluminum cooking utensils.

(b) Fresh from the oven at the Kroger bakery, Solon, Ohio. Aluminum bread pans ensure even baking of loaves and are easy to handle.







**Dr. J. F. Horwood**

*Chief Technical Officer*

## Research and Development

**Cooperative R & D work in Alcan locations over many years has produced solid progress in sheet-rolling technology.**

With the shifting emphasis of Alcan's product mix from ingot to manufactured products, 1970 saw its international R & D activities undergoing a searching analysis, with the objective of providing new direction, both organizational and in our research concepts. This is in preparation for the decade of the seventies — which will see far-reaching changes in the aluminum industry and will put an even greater premium on technical leadership.

Also, 1970 was a year of gratifying accomplishment in Alcan's sheet-rolling technology — a process fundamental to our commercial success. We made public three individual projects which, taken together, can be regarded as of fundamental and far-reaching importance. First, in Oswego, New York, Alcan's new sheet mill produced at a rate of 8,000 feet per minute, a speed very substantially faster than any comparable installation in the world of which we are aware. The possibilities of high utilization of such heavy cost capital equipment, especially in sheet for can-making, are very exciting.

Second, the Canadian sheet and plate group have substantially completed the research and development programme on their pilot "continuous cast and roll" (C.C.A.R.) sheet producing facility. This process, under active development for some years, has now reached a degree of efficiency exceeding our original performance objectives in terms of production, metallurgy, surface quality, and homogeneity of product. Commercial production is scheduled early in the coming year at Arvida.

Third, in Kingston, Ontario, Alcan unveiled to the metal industry its Alcan Automatic Flatness Control system which has been under development for five years. It is a sophisticated electronic control device which continuously senses the flatness of the aluminum sheet as it is being finish-rolled, and provides instantaneous accurate adjustment of the rolling mill controls. Flatness is a critical quality, especially in sheet for can-making. Again, we see a significant advance in terms of more effective use of existing expensive capital equipment and the consequent competitive and monetary advantages accruing to us. This equipment has already generated a great deal of interest and we intend to exploit its licensing possibilities thoroughly.

In the field of coatings for sheet and other products, we can also report progress. Aggressive and polluted atmospheres, especially in urban and industrial locations,

will eventually be controlled by Government and industry cooperation. However, in the interval, which may well be a protracted period, tough, sturdy, yet colourful coatings must be made available at reasonable cost. Using our substantial knowledge of paint chemistry, built up over the years and interpolating test results from a worldwide network of exposure stations, we are now starting to use a new generation of coatings with properties superior to those available just a short few years ago. This is of great significance to our building products markets and highway transportation.

In the electrical conductor field, Alcan's technicians and designers have produced a transmission cable with remarkably effective "non-vibration" or self damping characteristics. This development has been well received by our conductor customers worldwide.

In the extrusion field, we have some important developments under way to increase the speed of extrusion and improve shape control.





(c) Cast aluminum maze is among 15 tactile objects selected to help blind youngsters increase their ability to see by touch and expand their perception.



(d) International Diecasting Conference, Paris, bestowed award on the set of 33 high-precision castings incorporated in this ITT Creed teleprinter.

## Alcan Aluminum Aids Communication

Further captions on page 39

(a) Rheinallee-Tunnel, Düsseldorf area. Ceiling is lined with perforated aluminum panels which absorb sound, resist corrosion and provide easy maintenance.

(b) Light standards, bridge railings, highway signs on Trans-Canada Highway near Montreal, made from Alcan aluminum extruded shapes, castings and sheet.







**Holbrook R. Davis**  
*Chief Employee Relations  
Officer*

**Employee  
Relations**

**A cornerstone of Alcan  
policy is employee  
training at all levels.  
International management  
training at C.E.I., Geneva  
and in Caribbean  
seminars, is worthy of note.**

As a result of the consolidation of certain subsidiaries and the acquisition of others, total employment by the company reached the record figure of 66,500 at the end of 1970. Employment at this level was reached despite gains in productivity and cutbacks at many of the Company's offices and facilities. At the end of the year, additional programs had been introduced to further reduce the level of employment where justified and at the same time maintain or increase output.

The Company's consolidated subsidiaries, at the end of 1970, employed 66,500 persons. Geographic distribution, by major areas, was as follows:

Canada	18,900
United States	4,500
United Kingdom	10,400
Caribbean	9,700
Continental Europe	5,700
Latin America	6,000
Asia	7,100
Africa	2,000
South Pacific	2,200

Relations with Alcan employees in bargaining units and the unions representing them were maintained at a reasonably satisfactory level, with the exception of the Kitimat smelter and a Vancouver fabricating plant, in British Columbia, where strikes occurred. In Jamaica and Guyana, contracts covering substantial numbers of employees expired in 1970 and in neither country has agreement on a new contract yet been reached although no significant work stoppage has occurred. Elsewhere in the world, a number of agreements were reached with unionized employees and employee-employer relations were generally considered to be good.

The end of 1970 presaged the twenty-fifth anniversary of the founding of the Centre d'Études Industrielles, at Geneva, Switzerland. The Centre was established by Alcan and in the intervening years has served as a major training facility for employees showing promise of advancement in the international phases of the Company's business. In 1956, it became affiliated with the University of Geneva and, in recent years, it has received increasingly important support from other industries. The CEI is now firmly established, serving a wide spectrum of companies and institutions.

Emphasis continues on the training of all ranks of employees. Particular reference may again be made to the growing value of the Caribbean Management Seminars, not only to

Alcan but to an increasing number of companies active in that part of the world.

Despite a generally rising trend of accident frequency in industry, Alcan had a decrease in injury experience during 1970 and a substantial improvement in the severity rate. Accident rates at 74 percent of the Company's installations were lower than those of the National Safety Council of the United States and a large number reported improved frequency rates. Additional safety programs were developed and courses given to large numbers of foremen, an echelon of management which plays a particularly vital role in accident prevention.

During the year, Alcan accentuated its long-term efforts in the field of controlling pollutants and effluents at its facilities. Due to the particular nature of certain of the Company's industrial processes, Alcan has long been aware of the impact of industrial activity on the environment. A specific forward step in the struggle against pollution was taken when Alcan required each of its subsidiary companies to appoint designated individuals, not only at the plant level but at senior corporate management as well, who would be responsible for following the Company's efforts and recommending equipment and other changes intended to increase the effectiveness of the measures taken by Alcan against industrial pollution.



## Alcan Aluminum in Recreation

*Further captions on page 39*

(a) Whether skiing for fun or in competition, Scott/USA high-strength, light aluminum ski poles improve performance.

(b) For relaxation, racing or work, the snowmobile phenomenon has grown at a prodigious pace in Canada and elsewhere.

(c) Australian professional tennis players like the firm, sound responsive feel of Spalding's all aluminum racket named the "Smasher".

(d) "Petrel" all-aluminum sailboat, made in Canada, is an international class competition craft noted for its light weight, stability and ease of handling.







**John H. Hale**

*Executive Vice President*

## Finance

**Conversion of financial statements to U.S. dollars followed Canadian government action in allowing the exchange value of the country's dollar to "float".**

**Gross revenues showed rise with inclusion of companies newly consolidated in 1970.**

For the year 1970, Alcan's consolidated net income amounted to \$79.8 million, including a \$9 million profit on Canadian working capital arising from the exchange revaluation of the Canadian dollar. After provision for dividends on the Company's preferred stock, net income per common share, (excluding the exchange profit of \$0.27), was \$2.08. The net income and net income per common share figures for 1969 were \$82.2 million and \$2.42, respectively.

During 1970, Alcan paid four quarterly dividends on its common shares of 30 cents per share. The total disbursement of \$1.20 compares with \$1.125 in 1969. For the first quarter of 1971, the directors declared a dividend of 25 cents per common share. The indicated reduction in the quarterly dividend rate is related to the lower operating income experienced in the second half of 1970, the uncertainties in the near-term outlook, and the decision by the directors to conserve cash in order to maintain the momentum of the Company's capital expenditure program on a sound financial basis.

Commencing with the report of interim financial results for the quarter ended 30 June 1970, Alcan's directors decided to express Alcan's financial statements in terms of United States dollars rather than Canadian dollars, in order to give a fairer picture of the Company's world-wide business. A company such as Alcan which operates in many parts of the world requires a consistent scale for measuring its financial results. With the Canadian dollar "floating" since 1 June 1970, and with the U.S. dollar being the basic international currency to which all others relate, the U.S. dollar was felt to be a more appropriate unit for Alcan's financial reporting.

In arriving at the decision to express the results in U.S. dollars, recognition was given to the fact that about 60 percent of the Company's consolidated assets, 85 percent of its sales and operating revenues, 60 percent of its net income and 55 percent of its shareholders were non-Canadian. In addition, the price of aluminum, like most other materials sold internationally, is normally quoted in U.S. dollars and, since 1950, Alcan's dividends have been paid in U.S. dollars.

If Alcan had continued to express its financial results in Canadian dollars, net income for 1970 is estimated to have been Can. \$73 million before deducting a loss of Can. \$15 million on working capital arising from the exchange revaluation of the Canadian dollar, compared with Can. \$89 million in 1969.

## Gross Revenues

Alcan's total revenues from sales and other sources amounted to \$1,389 million in 1970 as compared with \$1,251 million in the prior year. Of this increase, \$102 million arose from the inclusion of companies newly consolidated after the acquisition of a majority interest. The largest of these was James Booth Aluminium Limited which contributed \$51 million to Alcan's consolidated sales of fabricated aluminum products and \$29 million to sales of products other than aluminum. Formerly a 50 percent-owned company, James Booth was merged with Alcan Industries Limited to form Alcan Booth Industries Limited in which Alcan now has a 75 percent equity interest.

Consolidated 1970 sales of aluminum products at \$1,044 million exceeded one billion dollars for the first time with the proportion in fabricated products at approximately 70 percent also being a new high. Over the last decade, sales value of fabricated products has more than tripled. Despite some downward movement in the closing months of the year, the average prices per pound received by Alcan for both ingot products and fabricated products were generally higher than in 1969.

The \$44 million increase in sales of products other than aluminum to \$261 million in 1970 reflects mainly the consolidation of James Booth's warehousing and distribution business. Sales of conventionally built houses in Canada declined while sales of alumina were at a higher level. Higher revenues from third-party ocean shipping activities and other services contributed to the \$5.0 million increase in operating revenues for the year.

Included in net income for 1970 is \$9.5 million representing Alcan's equity in net income of companies 50 percent-owned. The contribution of A/S Ardal og Sunndal Verk in Norway increased mainly due to improved price realizations, and the growth of the operations of Nippon Light Metal Company continued with the start-up of the 65,000-ton first stage of the Tomakomai smelter.



**Alcan Aluminum  
in the Visual Arts**

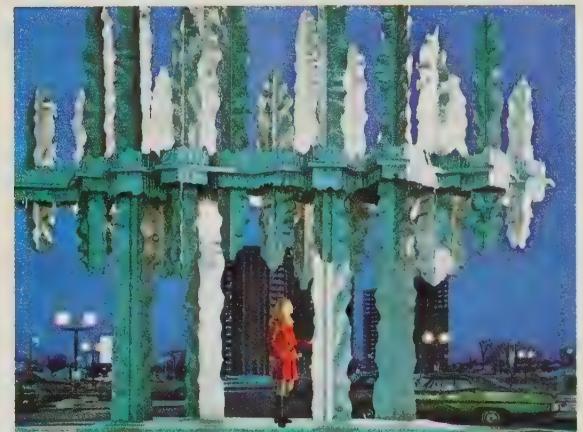
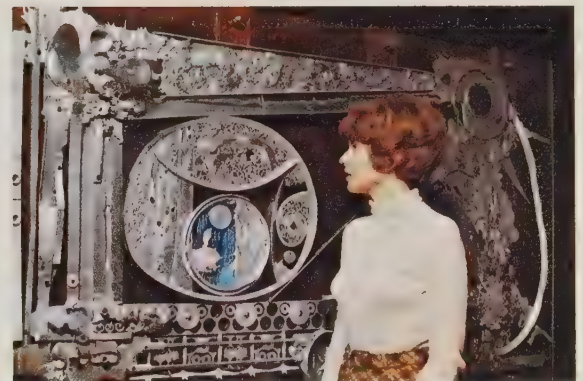
*Further captions on page 39*

(a) Jodi Bonet's cast aluminum doors add elegance to lobby of National Arts Centre, Ottawa.

(b) Aluminum mural symbolizes total process of the metal's production at ASV's headquarters.

(c) "Communigraph '70" by Art Price provides focal point for Ottawa's Postal Terminal.

(d) Tapestry woven of aluminum by Quebec's talented Micheline Beauchemin adorns Ontario's Parliament Buildings, Toronto.





**New long-term borrowings lengthen maturities of debt and add to flexibility of financial position.**

**Cash outlays for capital expenditures were \$165 million in 1970 and similar levels are planned for the year 1971.**

### *Gross Profit*

Alcan's total gross profit for 1970, including the share of net income of companies 50 percent-owned and "Other income", amounted to \$302 million, exclusive of the extraordinary profit on exchange. The upper chart on page 27 illustrates the growth in gross profit from \$127 million in 1961, and its major sources. In 1970, on a per-ton basis, the gross profit on fabricated products improved modestly while that on ingot products contracted slightly. Overall, the higher volume and proportion of fabricated products, on which gross profit margins are somewhat wider than on ingot, contributed to the maintenance of total gross profit on aluminum operations. This gross profit was achieved despite the adverse impact of the strike at the Kitimat smelter and the increases in costs arising from revaluation of the Canadian dollar, and general inflationary conditions.

The \$12 million addition to gross profit in 1970 on sales of products other than aluminum mainly reflects the greater volume of alumina sales, wider margins on calcined bauxite, and the bringing into consolidation of James Booth's non-aluminum activities. These increases were partly offset by reduced profit on housing operations in Canada.

The consolidation of newly acquired companies accounted for over one-half of the \$15.5 million increase in selling, research and administrative expenses, with the balance largely attributable to the impact of inflationary conditions experienced during the year. Interest expense rose, reflecting increased borrowings particularly for the U.K. smelter and power station, the consolidation of new companies, and the refunding of certain existing borrowings at current long-term interest rates.

### *Capital Expenditures*

Alcan made net cash outlays on fixed assets and investments amounting to \$165 million in 1970 (as compared with \$156 million in 1969). The 1970 figure was appreciably below the estimate made at the start of the year of \$205 million, as a result of certain reductions and deferments of expenditure. In addition, the consolidation of James Booth increased net fixed assets by \$34 million, replacing the previous investment figure of \$14 million. Of 1970 cash outlays, about one-quarter went toward construction of the U.K. smelter and power plant, and another \$30 million was spent on other smelter projects in Australia, Brazil, Canada and India. Much of the balance

was used for fabricating projects of which the largest were the new sheet mill at Arvida, the insulated wire plant in Ontario, the Oswego cold mill and certain acquisitions.

Cash generation, including provisions of \$94 million for depreciation and depletion and \$3 million for deferred taxes totalled \$177 million in 1970. This represented an increase of \$15 million or 9 percent over the \$162 million in 1969.

### *Long-Term Borrowings*

During 1970, Alcan arranged new long-term borrowings which considerably lengthened the average maturity of consolidated debt, added to the flexibility of the Company's financial position and provided for a portion of the current capital expenditure program. In March, Aluminum Company of Canada, Ltd made a \$100 million debenture offering in the United States with approximately one-half of the proceeds being utilized to retire short-term bank borrowings. In November, the same company sold a further \$60 million of debentures in Canada with the proceeds, which were received in January 1971, being applied to reduce borrowings outstanding under a revolving bank credit agreement.

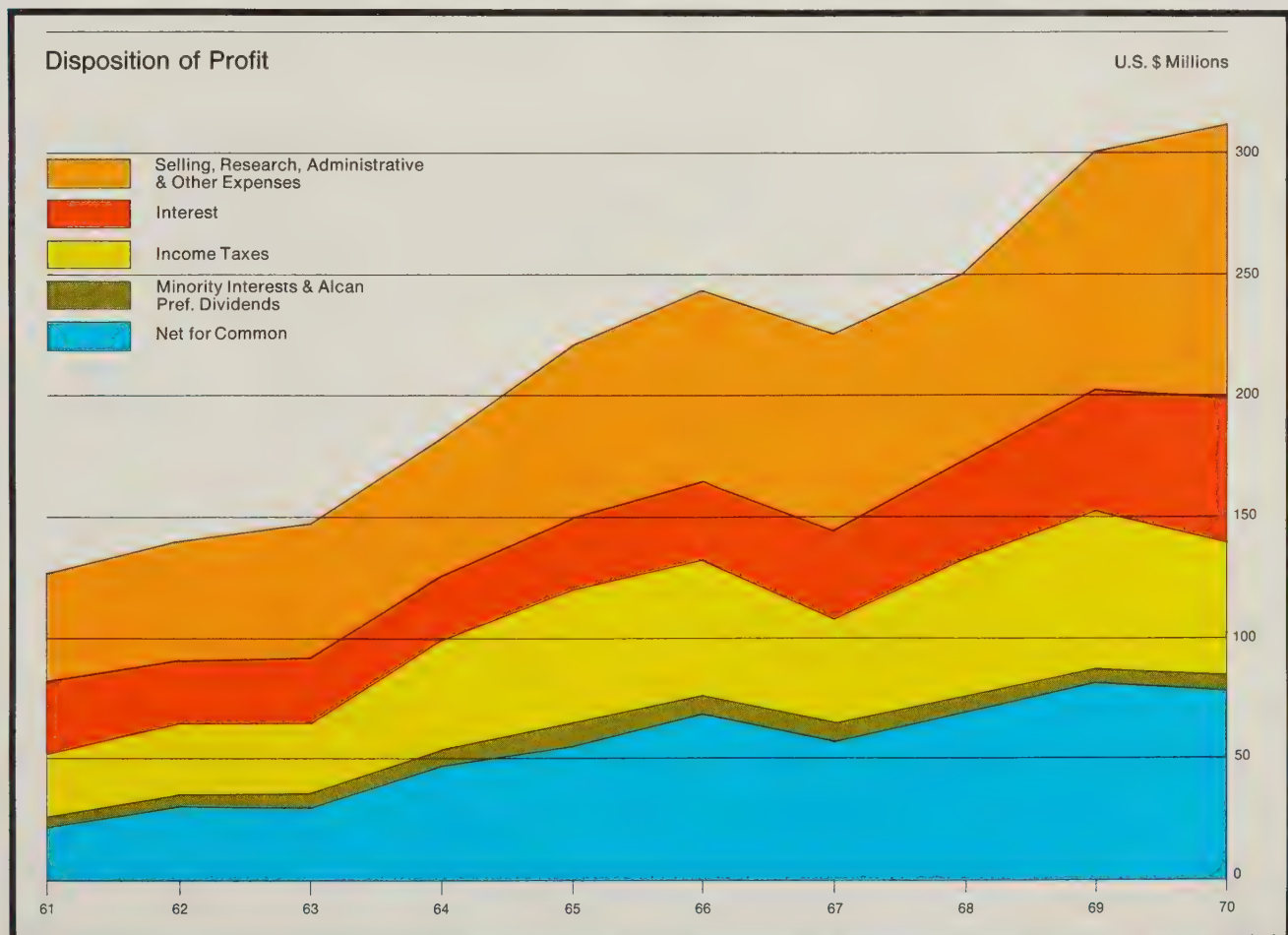
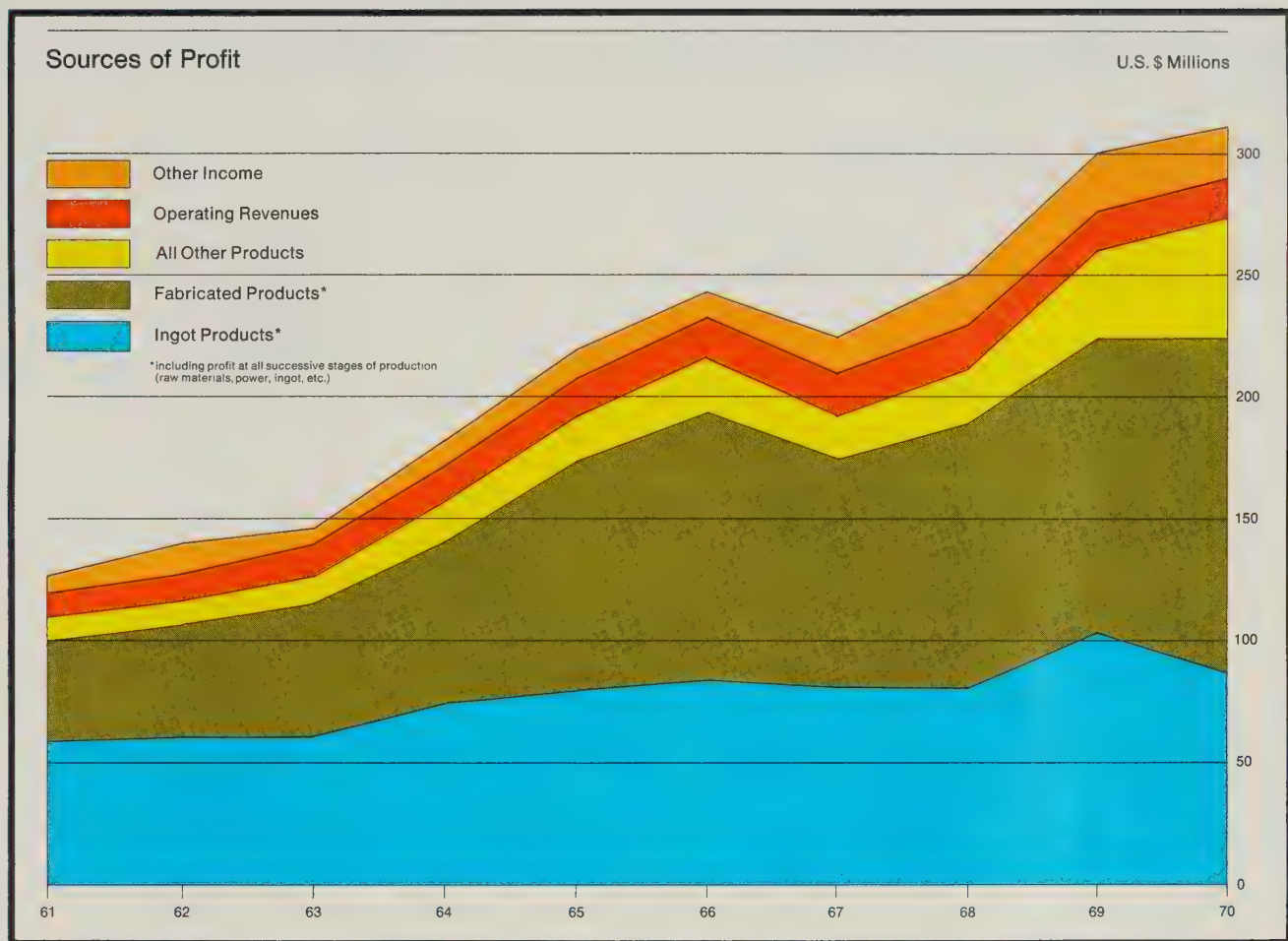
Also during 1970, Alcan Aluminium (U.K.) Limited drew down additional funds under previously arranged borrowings which increased this Company's outstanding long-term debt by the equivalent of \$19 million, and the consolidation of new companies added \$11 million to Alcan's consolidated debt. Local financings were carried out by Alcan Australia Limited and Alcan New Zealand Limited to cover the cost of expanding their facilities and operations.

### *Capital Spending in 1971*

The capital budget for 1971 contemplates expenditures of approximately \$160 million. In addition, Alcan has agreed in principle to acquire the business and assets of Elixir Industries in the U.S.A. in exchange for 670,000 Alcan common shares. Over one-third of 1971 capital spending will go toward completion of the smelter and power plant in the United Kingdom, while the program for rationalization and improvement of fabricating facilities in that country will involve a further several million dollars. The balance of expenditures is being directed toward a large number of smaller fabricating projects, the continued upgrading of existing smelter and raw material facilities, new smelters in Brazil and India, and the Amazon bauxite project.



## Alcan Consolidated Gross Profit





**Alcan Aluminium  
Limited  
and Subsidiary  
Companies**

**Consolidated  
Statement of  
Income**

year ending 31 December 1970

in thousands of U.S. dollars  
1970 1969\*

**Revenues**

Sales	\$1,304,681	\$1,169,319
Operating revenues	63,171	58,202
Equity in net income of companies 50% owned (notes 1 and 4)	9,516	9,274
Other income (note 13)	11,182	14,378

**1,388,550 1,251,173**

**Costs and expenses**

Cost of sales and operating expenses	992,372	868,212
Depreciation and depletion (note 6)	93,946	82,671
Selling, research and administrative expenses	105,910	90,389
Interest on debt not maturing within one year	48,711	36,841
Other interest	11,477	12,817
Other expenses (note 14)	7,163	8,368

**1,259,579 1,099,298**

**Income before following items**

**128,971 151,875**

**Income taxes**

Current	50,701	68,190
Deferred (note 6)	3,097	(2,783)

**53,798 65,407**

**Income before minority interests and extraordinary item**

**75,173 86,468**

Minority interests	4,341	4,247
--------------------	-------	-------

**Income before extraordinary item**

**70,832 82,221**

Profit from exchange revaluation of Canadian working capital (note 2)	9,029	—
---	-------	---

**Net income**

**\$ 79,861 \$ 82,221**

U.S. \$ per common share

**Income per common share (after preferred dividends)**

Before extraordinary item	\$2.08	\$2.42
Extraordinary item	.27	—
Net income	\$2.35	\$2.42

There would be no significant reduction of net income per common share if all the options and conversion privileges described in note 9 had been exercised.



# Alcan Aluminium Limited and Subsidiary Companies

## Consolidated Statement of Source and Application of Funds

year ending 31 December 1970	in thousands of U.S. dollars	
	1970†	1969*
Working capital — beginning of year	\$380,713	\$321,857
<b>Source of funds</b>		
Net income	79,861	82,221
Depreciation and depletion	93,946	82,671
Deferred income taxes	3,097	(2,783)
Cash generation from operations	176,904	162,109
Alcan Aluminium Limited common shares	40	15,371
New debt	133,611	125,249
Other (including minority interests)	26,131	16,703
	336,686	319,432
<b>Application of funds</b>		
Plant, equipment and investments (net of \$8 million government development grants)	184,834	155,975
Debt repayments	50,893	65,177
Dividends on Alcan preferred shares	2,439	2,368
Dividends on Alcan common shares	39,531	37,056
	277,697	260,576
Increase in working capital	58,989	58,856
	336,686	319,432
Working capital — end of year	\$439,702	\$380,713

†The consolidation for the first time in 1970 of a new subsidiary, James Booth Aluminium Limited, formerly a 50 percent-owned company, together with the related 25 percent reduction in the ownership of Alcan Industries Limited, added \$9.8 million to new debt, \$15.5 to minority interests, \$33.8 to plant and equipment, \$9.4 to working capital and reduced investments by \$14.0 million.

## Consolidated Statement of Retained Earnings

year ending 31 December 1970	in thousands of U.S. dollars	
	1970	1969*
Retained earnings — beginning of year	\$533,854	\$491,057
Net income	79,861	82,221
	613,715	573,278
Dividends on preferred shares	2,439	2,368
Dividends on common shares	39,531	37,056
	41,970	39,424
Retained earnings — end of year (note 10)	\$571,745	\$533,854



# Alcan Aluminium Limited and Subsidiary Companies

## Consolidated Balance Sheet

### Assets

31 December 1970

in thousands of U.S. dollars  
1970 1969\*

#### Current assets

Cash	\$ 54,029	\$ 51,565
Time deposits	35,540	53,874
Receivables	294,237	249,755
Inventories of aluminum and other materials (note 3)	414,685	363,483

798,491 718,677

Deferred receivables 13,459 11,469

Deferred charges 10,599 8,986

Investments in companies not more than  
50% owned (notes 1 and 4) 166,791 174,850

Property, plant and equipment (note 5) 2,390,106 2,201,456  
Less: Accumulated depreciation and depletion (note 6) 1,166,935 1,071,359

1,223,171 1,130,097

\$2,212,511 \$2,044,079

\*Restated in United States dollars for comparative purposes (note 2)

Approved by the Board  
Nathanael V. Davis, Director

John H. Hale, Director



# Alcan Aluminium Limited and Subsidiary Companies

## Consolidated Balance Sheet

### Liabilities

31 December 1970	in thousands of U.S. dollars	
	1970	1969*
<b>Current liabilities</b>		
Payables	\$ 189,760	\$ 133,752
Short-term bank borrowings (principally in other currencies)	86,941	121,639
Income and other taxes	37,972	45,413
Debt maturing within one year (note 7)	44,116	37,160
	<b>358,789</b>	<b>337,964</b>
 Debt not maturing within one year (note 7)	 750,911	 668,193
Deferred income taxes (note 6)	150,391	144,148
Minority interests (note 8)	112,225	91,510
 <b>Capital stock and retained earnings</b>		
4¼ % Cumulative redeemable convertible preferred shares, par Can. \$40 (note 9)		
Authorized and outstanding — 1,500,000 shares	55,632	55,632
Common shares, without nominal or par value (note 9)		
Authorized — 60,000,000 shares		
Outstanding — 32,943,632 shares (1969 — 32,941,961)	212,818	212,778
Retained earnings (note 10)	571,745	533,854
	<b>840,195</b>	<b>802,264</b>
	<b>\$2,212,511</b>	<b>\$2,044,079</b>



Notes  
to Financial  
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in millions of  
United States dollars

1. Principles of Consolidation

The consolidated financial statements include the accounts of all companies more than 50% owned. In addition, under the equity accounting principle, consolidated net income includes Alcan's equity in the net income of all companies 50% owned and the investments in these companies have been increased by 50% of their undistributed net income since acquisition (see note 4).

When the cost of an investment exceeds the book value of Alcan's equity therein at date of acquisition, the excess is amortized over the estimated useful life of the related fixed assets. All intercompany items and transactions between subsidiaries, including profits in inventories, have been eliminated.

2. Translation of Accounts into United States Dollars

Prior to 1970, Alcan presented its consolidated financial statements in Canadian dollars. However when the foreign exchange value of the Canadian dollar was allowed to "float" in June 1970, the Board of Directors decided that the consolidated results would be expressed more accurately and consistently in United States dollars. This decision to adopt United States dollar reporting also recognized that about 85% of consolidated revenues and 60% of net income originate in United States dollars, and that about 60% of consolidated assets are located outside of Canada. Accordingly, the consolidated financial statements for 1969 have been restated in United States dollars for comparative purposes.

Accounts, other than United States dollar accounts, included in the consolidated balance sheet are translated at rates of exchange current at year-end except that (a) inventories, investments, fixed assets and accumulated depreciation and depletion are at rates current at dates of acquisition, (b) debts not maturing within one year are

at rates current at dates of original borrowing and (c) deferred income taxes are at rates current at dates of origin. Accounts included in the consolidated statement of income, except depreciation and depletion, are translated at average rates of exchange prevailing during the year. The foregoing accounting principles are unchanged from those used in the past for the translation into Canadian dollars of accounts in other currencies.

The increase in the exchange value of the Canadian dollar since 1 June 1970 resulted in a profit on the revaluation of Canadian working capital, which has been included in the consolidated statement of income as an extraordinary item.

If Alcan had continued to keep its financial results in Canadian dollars, net income for 1970 is estimated to have been Can. \$73 million before deducting a loss of Can. \$15 million on working capital arising from the exchange revaluation of the Canadian dollar, compared with Can. \$89 million in 1969.

3. Inventories of Aluminum and Other Materials

Inventories, as summarized opposite, are stated at cost (determined for the most part on the monthly average method) or net realizable value, whichever is the lower.

	1970	1969
Aluminum	\$213	\$192
Raw materials	101	90
Other	101	81
	<u>\$415</u>	<u>\$363</u>

4. Investments in Companies Not More Than 50% Owned

Companies 50% owned, at cost (1970 — \$83 million; 1969 — \$97) plus equity in undistributed net income since acquisition (note 1)

1970

1969

\$124

\$131

Companies less than 50% owned, at cost or written-down value

43

44

\$167

\$175

Alcan's share of the net income of the companies 50% owned amounted to \$9.5 million in 1970 (\$9.3 in 1969); dividends received from these companies amounted to \$3.3 million in 1970 (\$3.6 in 1969).

Summarized below are the assets and liabilities of all companies 50% owned, which are located mainly in Germany, Japan and Norway.

Assets

Current assets	\$254
Investments	67
Fixed assets	680
Less: Accumulated depreciation	(262)
	<u>\$739</u>

Liabilities

Current liabilities	\$201
Debt	264
Deferred income taxes	50
Equity	
Alcan	112
Other shareholders	112
	<u>\$739</u>

Alcan has investments in several non-consolidated companies which operate as joint ventures supplying materials to each participant on a cost-sharing basis. The results of their operations are included in the consolidated financial statements as a cost of the materials so obtained.

5. Property, Plant and Equipment, at cost

Land and water rights  
Mineral properties, rights and development  
Buildings, machinery and equipment

	1970	1969
	\$ 60	\$ 58
	18	17
	<u>2,185</u>	<u>2,004</u>
	2,263	2,079
Construction work in progress	127	122
	<u>\$2,390</u>	<u>\$2,201</u>

Capital projects, excluding the acquisition referred to in note 9, are expected to involve the expenditure of some \$160 million in 1971.



## Notes to Financial Statements

*in millions of  
United States dollars*

### 6. Depreciation Policy and Deferred Income Taxes

Depreciation, as recorded in the accounts, is calculated on the straight-line method using rates based on the estimated useful lives of the respective assets. Depletion, not significant in amount, is calculated on the unit of production basis.

Income tax regulations in Canada, and in certain other countries, permit the use (for the purpose of determining income taxes) of various forms of capital cost allowances which do not coincide with the amount of depreciation recorded in the accounts. These allowances generally exceed straight-line depreciation during the early life of

new assets and later fall short of it.

When capital cost allowances utilized for determining income taxes exceed straight-line depreciation, an amount equivalent to the resultant reduction in current income taxes is charged to income and credited to Deferred Income Taxes. When the allowances so utilized fall short of straight-line depreciation, resulting in higher current income taxes than would otherwise be payable, an appropriate portion of the amount previously deferred is transferred back to income.

7. Debt not Maturing Within One Year	1970	1969
Aluminum Company of Canada, Ltd		
Bank loans under \$160 million revolving credit agreement, due 1974/1978	\$160*	\$160
3½ % Sinking fund debentures, due 1971 (Can. \$17 million)	16	16
4½ % Sinking fund debentures, due 1973 (Can. \$19 million)	20	23
4½ % Sinking fund debentures, due 1980	61	64
9½ % Sinking fund debentures, due 1995	92†	—
5.10% Notes, due 1971/1992	94	96
3½ % Note, due 1974 (Can. \$40 million)	38	38
Other debt	15	40
Alcan Aluminum Corporation		
4¾ % Notes, due 1971/1984	39	40
Non-interest bearing notes, due 1971/1975	14	17
Other debt	7	4
Alcan Aluminium (U.K.) Limited		
9% Convertible loan stock, due 1989/1994 (£ 12 million)	29	29
10½ % Guaranteed loan stock, due 1989/1994 (£ 8 million)	19	19
Loan, due 1979 (£ 10 million)	25	7
Alcan Aluminiumwerke GmbH		
Bank loans, due 1971/1981 (DM 82 million)	21	21
Alcan Australia Limited		
Various secured borrowings, due 1972/1988 (A\$ 20 million)	22	21
Alcan (Bermuda) Limited		
7½ % Notes, due 1971/1978 (Lire 12 billion)	19	19
Alcan Booth Industries Limited		
8% Debentures, 1986/1991 (£ 6 million)	15	7
Notes, due 1971/1972 (£ 3 million)	7	9
Indian Aluminium Company, Limited		
Various secured borrowings, due 1971/1983 (principally rupees)	33	31
Other companies		
Bank loans (principally Jamaica and United Kingdom)	18	20
Debt (principally Canada, South Africa and U.S.A.)	29	24
	<u>793</u>	<u>705</u>
Less: Debt maturing within one year included in current liabilities (equivalent to \$44 million at year-end rates of exchange)	<u>42</u>	<u>37</u>
	\$751	\$668

After allowing for prepayments, sinking fund and other requirements over the next five years amount to approximately \$42 million in 1971, \$44 in 1972, \$52 in 1973, \$100 in 1974 and \$60 in 1975.

\*In January 1971, Aluminum Company of Canada, Ltd issued Can. \$60 million of 9½ % sinking fund debentures, due 1991. The proceeds were used to reduce these bank loans.

†In January 1971, a further \$8 million was issued under Delayed Delivery Contracts of March 1970.



**Notes  
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Statements**

*in millions of  
United States dollars*

8. Minority Interests	1970	1969
Preferred Shares		
Aluminum Company of Canada, Ltd		
4% First preferred shares	\$ 5.9	\$ 6.4
4½ % Second preferred shares	42.8	44.0
Other companies	6.3	3.8
	55.0	54.2
Minority interests in equity of subsidiaries	57.2	37.3
	\$112.2	\$91.5

**9. Capital Stock**

At 31 December 1970, 222,850 Alcan common shares were under option to officers and other employees at various prices, as indicated below, under Share Option Plans approved by the shareholders. During 1970, no further options were granted or exercised.

Option price, in Can. \$	Year of grant	Number of Shares			
		Shares under option 1 January 1970	Options expired or cancelled in 1970	Shares under option 31 December 1970*	Expiry dates of options
\$30.75	1960	38,740	38,740	—	—
33.875	1961	750	—	750	1971
25.875	1963	57,100	3,000	54,100	1973
33.0625	1967	52,500	—	52,500	1972
33.0625	1967	117,500	2,000	115,500	1977
		266,590	43,740	222,850	

\*Including shares under options granted to directors and officers of the Company: 18,600 in 1963 and 46,500 in 1967.

At 31 December 1970, 132,000 shares were available until 15 April 1971 for the granting of options under one of the Share Option Plans and 1,500,000 common shares were subject to issuance under the conversion privileges of the 4¼ % cumulative redeemable convertible preferred shares. The preferred shares may be converted into common shares on a share per share basis at any time prior to 15 July 1973, and may be redeemed in whole or in part at any time at the option of the Board of Directors on thirty days' notice at Can. \$43 per share.

Options to purchase Alcan shares were also issued in connection with the acquisition in 1969 of a business in

the United States. During 1970, options for 1,671 shares were exercised, leaving options for 4,416 shares outstanding at 31 December 1970. Capital stock account is increased by Can. \$25 per share at date of issue of these shares.

In January 1971, Alcan announced its intention to acquire the business and assets of Elixir Industries of California, U.S.A., in exchange for 670,000 common shares of Alcan, which had an approximate value of \$15 million, based on the average U.S. market price of Alcan shares during the negotiation period.

**10. Dividend Restrictions**

Various debt issues of Aluminum Company of Canada, Ltd contain dividend restrictions on the common shares of that company. The Trust Indenture covering the most recent issue has the effect of restricting such distribu-

tions to U.S. \$100 million plus the undistributed consolidated net income of Aluminum Company of Canada, Ltd subsequent to 31 December 1969.

**11. Commitments**

Certain subsidiaries have financial commitments, long-term leases, purchase agreements and tolling arrangements. These include long-term cost sharing joint ventures with other aluminum companies in respect of bauxite mining, alumina production and the semi-fabrication of aluminum. Under these arrangements, the companies are required to pay their respective share of the operating costs of the facilities, including the amount required to service the long-term debt issues of the joint ventures, and in one case to contribute toward the

capital cost of the project. The fixed portion of the commitments under these arrangements amounts to \$9.1 million in 1971, \$6.9 in 1972, \$6.5 in 1973, \$7.9 in 1974 and lesser annual amounts up to 1992.

In addition, commitments for charter hire of ships are \$9.5 million in 1971 (\$9.8 paid in 1970), \$7.7 in 1972, \$6.1 in 1973 and lesser annual amounts up to 1978. See also reference to capital expenditures in note 5, debt repayments in note 7 and capital stock issues in note 9.



**Notes  
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*in millions of  
United States dollars*

**12. Geographical Distribution of Assets and Liabilities**

The following is a condensed analysis of the consolidated balance sheet at 31 December 1970, according to the domicile of the constituent companies and their branches.

	North America	South America and Caribbean	United Kingdom and Continental Europe	All Other	Total
<b>Assets</b>					
Current assets	\$ 415	\$ 82	\$ 206	\$ 96	\$ 799
Investments	16	8	97	46	167
Fixed assets	1,534	370	273	213	2,390
Less: Accumulated depreciation	(799)	(194)	(104)	(70)	(1,167)
Other assets	15	8	1	—	24
	<u>1,181</u>	<u>274</u>	<u>473</u>	<u>285</u>	<u>2,213</u>
<b>Liabilities</b>					
Current liabilities	154	47	105	53	359
Debt	539	35	117	60	751
Deferred income taxes	128	8	9	5	150
Minority interests	53	5	16	38	112
Alcan preferred shares	56	—	—	—	56
	<u>930</u>	<u>95</u>	<u>247</u>	<u>156</u>	<u>1,428</u>
<b>Common Shareholders' Equity</b>	<b>\$ 251</b>	<b>\$ 179</b>	<b>\$ 226</b>	<b>\$ 129</b>	<b>\$ 785</b>

**13. Other Income**

	1970	1969
Income from time deposits	\$ 5.4	\$ 5.3
Gain on redemption of debt	3.4	4.6
Gain from disposal of fixed assets and investments	—	1.8
Income from companies less than 50% owned	1.2	1.4
Other	1.2	1.3
	<u>\$11.2</u>	<u>\$14.4</u>

**14. Other Expenses**

	1970	1969
Supplemental Compensation Plan	\$ 3.6	\$ 3.8
Loss on investments and fixed asset disposals	1.5	—
Financing expenses of subsidiaries	.2	2.6
Other	1.9	2.0
	<u>\$ 7.2</u>	<u>\$ 8.4</u>

**15. Pension Plans**

Alcan and its subsidiaries (with some exceptions) have established pension plans in the principal countries where they operate, for the greater part contributory and generally open to all employees. With respect to these plans,

Alcan and its subsidiaries incurred a pension expense of \$8.0 million in 1970 (\$11.2 in 1969). Assets in the pension funds are virtually in balance with the liabilities for pension benefits accrued to 31 December 1970.

**16. Statutory Information**

The Company has 14 directors and five honorary directors. Their aggregate remuneration as directors and honorary directors amounted to \$68,495 in 1970. The Company has 11 officers, including the President and those reporting

directly to him, six of which officers are directors of the Company. The aggregate remuneration received by these officers in 1970, and by past officers who were still receiving remuneration during the year, amounted to \$1,297,796.



PRICE WATERHOUSE & CO.  
CHARTERED ACCOUNTANTS

5 PLACE VILLE MARIE  
MONTREAL 113

9 February 1971

To the Shareholders of Alcan Aluminium Limited

We have examined the consolidated balance sheet of Alcan Aluminium Limited and subsidiary companies as at 31 December 1970 and the consolidated statements of income, retained earnings, and source and application of funds for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of accounting records and such other auditing procedures as we considered necessary in the circumstances. We have also examined the consolidated financial statements for 1969 which have been restated in United States dollars for comparative purposes as explained in Note 2 to the accompanying financial statements.

In our opinion these financial statements present fairly the consolidated financial position of the companies in United States dollars as at 31 December 1970 and 1969 and the results of their operations and the source and application of their funds for the years then ended, in accordance with generally accepted accounting principles applied on a consistent basis.

*Price Waterhouse & Co.*

Chartered Accountants

**Transfer Agents**

**Preferred Shares**

National Trust Company, Limited, Montreal, Toronto,  
Vancouver

**Common Shares**

National Trust Company, Limited, Montreal, Toronto,  
Calgary, Vancouver  
Mellon National Bank and Trust Company, Pittsburgh  
First National City Bank, New York  
Morgan Grenfell & Co. Limited, London

**Registrars**

**Preferred Shares**

The Royal Trust Company, Montreal, Toronto, Vancouver

**Common Shares**

The Royal Trust Company, Montreal, Toronto, Calgary,  
Vancouver, London (Eng.)  
Pittsburgh National Bank, Pittsburgh  
Manufacturers Hanover Trust Company, New York



## A Ten-Year Summary

All years prior to 1970 have been restated in U.S. dollars for comparative purposes.

Operating Data <i>(in thousands of tons)</i>	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
<b>Aluminum sales by consolidated subsidiaries</b>										
Ingot and ingot products	429	471	531	508	503	561	563	614	742	655
Fabricated products	242	259	331	354	490	554	541	606	621	691
Total	671	730	862	862	993	1,115	1,104	1,220	1,363	1,346
<b>Fabricated products sales by all subsidiary and related companies</b>	346	370	497	590	663	724	703	805	870	930
<b>Production of primary aluminum</b>										
Canada	569	596	626	740	728	788	878	873	969	903
Subsidiary and related companies outside Canada	171	194	214	245	269	286	521	588	724	827
<b>Consolidated Income Statement Items</b> <i>(in millions of U.S. dollars)</i>										
<b>Revenues</b>										
Sales of aluminum ingot and ingot products	184	194	215	219	224	251	249	271	342	321
Sales of aluminum fabricated products	218	231	301	333	461	523	514	560	611	723
Sales of all other products	34	32	47	64	79	90	96	119	217	261
Operating revenues	56	52	53	60	63	63	60	57	58	63
Equity in net income of companies 50% owned	4	3	3	3	3	3	6	6	9	10
Other income	4	9	6	8	8	7	8	16	14	11
	500	521	625	687	838	937	933	1,029	1,251	1,389
Income before income taxes	51	64	64	99	119	132	107	133	152	129
Income taxes	24	30	29	45	56	58	44	59	65	54
Minority interests and Alcan preferred dividends	5	4	6	7	8	6	6	5	7	7
Extraordinary gains	—	—	—	—	—	11	—	—	—	9
Net income for common stock	22	30	29	47	55	79	57	69	80	77
<b>Consolidated Balance Sheet Items</b> <i>(in millions of U.S. dollars)</i>										
Working capital	207	219	275	277	308	306	399	322	381	440
Property, plant and equipment (net)	945	944	944	938	1,003	1,043	1,074	1,085	1,130	1,223
Investments in companies owned 50% or less	48	54	56	62	57	58	116	155	175	167
Long-term debt	558	562	547	520	575	566	676	608	668	751
Deferred income taxes	134	133	136	137	138	146	150	148	144	150
Minority interests	78	78	78	78	82	82	81	84	92	112
Shareholders' equity	448	460	533	561	591	643	709	744	802	840
Total assets	1,355	1,378	1,439	1,464	1,584	1,662	1,822	1,864	2,044	2,213
<b>Per Share of Common Stock</b> <i>(in U.S. dollars)</i>										
Net income (after preferred dividends but before extraordinary gains)	0.73	0.96	0.94	1.52	1.77	2.18	1.76	2.12	2.42	2.08
Extraordinary gains	—	—	—	—	—	0.36	—	—	—	0.27
Net income (including extraordinary gains)	0.73	0.96	0.94	1.52	1.77	2.54	1.76	2.12	2.42	2.35
Dividends paid	0.60	0.60	0.60	0.65	0.82	0.92	1.00	1.02	1.12	1.20
Cash generation	2.50	2.82	2.96	3.61	4.06	4.69	4.15	4.58	4.85	5.30
Book value	14.60	14.97	15.39	16.26	17.22	18.85	20.23	21.33	22.67	23.82
<b>Other Statistics</b>										
Capital expenditures (in millions of U.S. dollars)	79	62	65	67	133	113	176	136	156	185
Cash generation (in millions of U.S. dollars)	77	87	93	115	129	148	136	150	162	177
Return on average equity (as a percentage)	4.9	6.5	6.1	9.0	10.0	11.4	8.8	9.7	10.6	9.7
Number of common stock shareholders at year end (thousands)	54	54	51	50	52	57	67	73	72	76
Number of employees at year end (thousands)	47	50	53	54	60	64	63	61	62	67



# Alcan Aluminium Limited

## Principal Operating Subsidiaries and Related Companies

31 December 1970

### North America

#### Canada

Aluminum Company of Canada, Ltd  
Alcan Canada Products (Division)  
ALCAN UNIVERSAL Homes (Division)  
Alcan Building Products Limited  
Almetco (Division)  
Alcan Design Homes Limited  
Alcan Pipe Limited\*  
Alma & Jonquière Railway Company, The  
Aluminum Goods Limited  
Canada Foils, Limited  
Newfoundland Fluorspar Limited  
Roberval and Saguenay Railway Company, The  
Saguenay Power Company, Ltd  
Saguenay Shipping Limited  
Saguenay Terminals Limited  
Saguenay Transmission Company, Limited  
Supreme Aluminum Industries Limited\*\*\*

#### United States

Alcan Aluminum Corporation  
Alcan-LSI Hawaiian Homes\*\*  
Fabral Corporation\*\*

#### Bermuda

Alcan (Bermuda) Limited

### Caribbean

#### Guyana

Demerara Bauxite Company, Limited  
Sproston's (Guyana) Limited

#### Jamaica

Alcan Jamaica Limited  
Alcan Products of Jamaica Limited  
Sproston's (Jamaica) Limited

#### Trinidad

Chaguaramas Terminals Limited  
Sproston's (Trinidad) Limited

### Latin America

#### Argentina

Camea S.A.I.C.\*\*\*

#### Brazil

Alcan Alumínio do Brasil S.A.  
Alumínio do Brasil Nordeste S.A.  
Alumínio Minas Gerais S.A.  
Mineração Rio do Norte S.A.

#### Colombia

Alumínio Alcan de Colombia, S.A.\*

#### Mexico

Alcan Alumínio, S.A.\*

#### Uruguay

Alcan Alumínio del Uruguay S.A.\*

#### Venezuela

Alcan de Venezuela, S.A.

### Europe

#### Belgium

Alcan Aluminium Raeren S.A.

#### Denmark

Aluminord A/S\*\*\*  
Dansk Aluminium Industri A/S\*\*\*

#### France

Aluminium Alcan de France  
Alcan-Schwartz, Filage et Oxydation\*  
S.A. des Bauxites et Alumines de Provence  
Société Industrielle de Transformation et de Construction (SITRACO)\*\*\*

#### Germany

Alcan Aluminiumwerke GmbH  
Alcan Folienwerke GmbH & Co. Kommanditgesellschaft\*  
Aluminium Norf GmbH\*\*

#### Ireland

Unidare Limited\*\*\*

#### Italy

Alcan Alluminio Italiano S.p.A.  
Angeletti & Ciucani Fonderia Laminatoio S.p.A.\*†

#### Netherlands

N.V. Nederlandsche Aluminium Maatschappij\*\*\*

### Norway

A/S Ardal og Sunndal Verk (ASV)\*\*  
A/S Nordisk Aluminiumindustri\*\*  
DNN Aluminium A/S\*\*

### Spain

Empresa Nacional del Aluminio, S.A. (ENDASA)\*\*\*

### Sweden

A/B Svenska Metallverken\*\*\*

### Switzerland

Aluminiumwerke A.-G. Rorschach

### United Kingdom

Alcan Booth Industries Limited\*  
Alcan Castings and Forgings Limited\*  
Alcan Design Products Limited\*  
Alcan Ekco Limited\*\*\*  
Alcan Enfield Alloys Limited\*\*  
Alcan Foils Limited\*  
Alcan Polyfoil Limited\*  
Alcan (U.K.) Limited  
Alcan Wire Limited\*  
P. J. Bailey (Patent Glazing) Limited\*  
Thomas Bennett Limited\*\*\*  
Bonallack & Sons Limited\*  
Freight Development Co. Limited\*  
Hunter Aluminium Company Limited\*\*\*  
Johnson and Bloy Aluminium Pigments Limited\*\*\*†  
E.C. Payter & Co. Ltd\*  
Saguenay Shipping (U.K.) Limited  
Tenon Contracts Limited\*

### Africa

#### Ghana

Ghana Aluminium Products Limited\*

#### Guinea

Halco (Mining) Inc.\*\*\*

#### Nigeria

Alcan Aluminium of Nigeria Limited\*  
Flag Aluminium Products Limited\*

#### South Africa

Alcan Aluminium of South Africa Limited\*  
Republic Aluminium Company (Pty) Limited\*

### Asia

#### India

Indian Aluminium Company, Limited\*

#### Japan

Nippon Light Metal Company, Ltd\*\*  
Toyo Aluminium K.K.\*\*

#### Malaysia

Alcan Malaysia Berhad\*  
Southeast Asia Bauxites Limited\*  
Johore Mining and Stevedoring Co. Ltd\*

#### Thailand

Alcan Thai Company Limited\*\*

### South Pacific

#### Australia

Alcan Australia Limited\*  
Alcan Queensland Pty Limited  
Kawneer Company Pty Limited\*  
Queensland Alumina Limited\*\*\*  
Wm Breit & Company Pty Ltd\*

#### New Zealand

Alcan New Zealand Limited\*  
Aluminium Conductors Limited\*\*\*

### International Sales

Alcan Alumínio (America Latina) Limited — Latin America  
Alcan Asia Limited — Japan, Afghanistan, India, Pakistan  
and certain areas of Asia  
Alcan Southeast Asia Limited — Hong Kong, Philippines  
and certain areas of Asia  
Alcan S.A. — Continental Europe (excluding Germany and  
Scandinavia), Middle East, North Africa  
Alcan Metall GmbH — Germany  
Alcan (U.K.) Limited — U.K., Scandinavia  
Alcan Sales (Division of Alcan Aluminum Corporation) —  
U.S.A. and Caribbean  
Magnesium Company of Canada, Ltd

Unless otherwise indicated, companies are 100% owned  
\*Less than 100% owned but more than 50%

\*\*50% owned

\*\*\*Less than 50% owned

†Effective January 1971



### Page 7

- (a) New Bullet Train is being built by Kawasaki Heavy Industries, Ltd and Nippon Sharyo Seizo Kaisha Ltd. Main aluminum supplier is Alcan-related Nippon Light Metal Company, Ltd.
- (b) Hopper cars built by A.E. Goodwin Limited and Tulloch Limited, Sydney, use 9,000 lb. of aluminum plate and extrusions supplied by Alcan Australia Limited.

### Page 9

- (a) International championship winner, the Porsche car has Nüral aluminum cylinder heads manufactured in the Nürnberg plant of Alcan Aluminiumwerke.
- (b) HMCS Bras d'Or was designed by DeHavilland Aircraft of Canada, Toronto; the aluminum hull was built by Marine Industries Limited, Sorel, Quebec.
- (c) Alcan Aluminum Corporation distributes in the U.S.A. frame rails made by Alcan Canada Products. Payload gain is 170 lb. on a 165 in. wheel base truck.
- (d) Several models of Ford Ranger pick-up trucks in the U.S.A. have front aluminum grille processed by Firestone from Alcan Aluminum Corporation.

### Page 11

- (a) Cast bus conductor for Alcan's Lynemouth smelter was supplied in part by Alcan Booth Industries Limited, England, fabricated by Huso Verft & Mek. Versted, Norway, and Foster Wheeler John Brown Boilers Ltd, England.
- (b) Alcan's SDC, developed by Ontario Hydro and Alcan R&D, is made in Canada by Alcan Canada Products, in the U.S.A., by Alcan Cable.
- (c) Electromagnets manufactured by Varian Associates, Palo Alto, California, rely on windings of aluminum wire from Alcan Aluminum Corporation. Here, equipment is used at the Syntex Research Institute, Palo Alto.

### Page 13

- (a) Cinesphere is probably the world's most advanced theatre system. Dome was designed and built by F. Fentiman and Sons Ltd., Ottawa.
- (b) The Dusit Thani Hotel makes wide use of anodized aluminum supplied by the factory of Alcan Thai. Architects: Kanko Kikaku Sekkeisha, Tokyo; general contractors, Ohbayashi-Gumi, Ltd, Bangkok.
- (c) Office building on Gartenstrasse, Zurich, designed by architect Werner Frey for the Patria Life Insurance Company. Aluminum fabricated by Geilinger und Co., Winterthur, Alcan Anolok® finish processed by Aluminium-Veredlungs-Werke A.G., Dietlikon.
- (d) Mexico City's Azteca stadium was designed by architect Pedro Ramirez Vazquez. The roof, installed by Construcciones de Aluminio, S.A., required 35 tons of aluminum sheet supplied by Alcan Aluminio, S.A.

### Page 15

- (a) There are 48,000 parts in the space frame roof of Parque Anhembi exhibition hall. Cedric Marsh supplied the design as consultant and Alcan Aluminio do Brasil, the aluminum tubes. Fichet & Schwartz-Hautmont looked after fabrication and erection.
- (b) Glittering dome of Bloedel Conservatory is 140 ft. in diameter and 34 ft. high. Architects: Underwood, McKinley, Cameron, Wilson, Smith, West Vancouver, British Columbia; structural engineers: Thorson and Thorson, West Vancouver. Triodetic Structures Limited, Ottawa, looked after the aluminum design and fabrication. F. Fentiman and Sons Ltd, Ottawa, supervised the assembly.
- (c) Highly reflective painted aluminum roof permits activities to go on much later in the day. The sheet, supplied by Fabral Corporation, was coated at Alcan's Warren, Ohio plant.

### Page 17

- (a) United Vintners (Italian-Swiss Colony), Madera, California, produce colourful closures for their wide variety of well-known wines from painted stock supplied by the Riverside plant of Alcan Aluminum Corporation.
- (c) Canada Foils Limited, Scarborough, Ontario, a member of Alcan's Canadian Packaging Division, is a leading manufacturer of unsupported or laminated plain and printed foils, papers, films of all types.
- (d) Schenley Distillers, Inc. cap their bottles with closures of different length and colour. Alcan's Riverside, California plant is a supplier of painted closure stock.

### Page 19

- (b) Widely used aluminum bread pans by Chicago Metallic (a division of Alcan Aluminum Corporation) facilitate baking, cooling and handling.
- (d) High quality frozen foods in aluminum containers supplied by Chicago Metallic are prepared in the Kitchens of Sara Lee, Deerfield, Illinois.

### Page 21

- (a) For this 2,100 ft.-long twin tunnel, Alcan Aluminiumwerke's Göttingen works supplied white baked enameled sheet assembled by the Dornier Panel System. Architect: Prof. Friedrich Tamms.
- (c) Aluminum maze and other tactile objects were devised by the Sheridan School of Design, Toronto. Metals and Alloys Company, Ltd, Toronto, supplied the Alcan aluminum for the maze.
- (d) Award-winning pressure die castings were made by Birmingham Aluminium Castings (1903) Co. Ltd from foundry alloys supplied by Alcan (U.K.) Limited. Manufacturer is ITT Creed, Brighton, Sussex.

### Page 23

- (a) Scott/USA, makers of precision ski poles, use aluminum shafts fabricated by Jas. D. Easton, Inc., Van Nuys, California, from forged slugs supplied by the Riverside plant of Alcan Aluminum Corporation.
- (b) Bombardier Ltd, Valcourt, Quebec, has led the world in production of tracked snow vehicles. Alcan aluminum improves the overall performance of these popular and versatile machines.
- (c) The "Smasher" is distributed in Australia by A.G. Spalding (Australia) Pty. Limited.
- (d) Designed by Philip L. Rhodes, the Petrel is a stable, lightweight sailboat. Its specifications are: length 12 ft.; beam 61 in.; weight 225 lb.; sail area 100 sq. ft. It is made by Aluminum Goods Limited, Toronto.

### Page 25

- (a) Reminiscent of hammered forgings of the Middle Ages, 22 ft. pivoting cast aluminum doors were designed by Jodi Bonet of Montreal.
- (b) Aluminum mural by architect Kjell Ullring and wife Benedicte starts, top right, with the sun providing the energy for smelting, continuing at the bottom with fabricating. Circular focal point symbolizes the combined skills of planning and engineering.
- (c) Arresting 25 ft. high aluminum composition by Art Price is made of individually sand-cast fins welded together. Casting by Alloy Foundry Limited, Merrickville, Ontario; welding by Queensway Welding, Ottawa.
- (d) Painter-weaver Micheline Beauchemin creates from aluminum rare interplay of light and colour.

### Front Cover

- 3. Painted industrial bronze aluminum siding was specified by architects Donaldson & Sankey. Contractors: Chant Company Limited, Montreal.
- 6. Pangnirtung's modern school by Montreal architects Papineau, Gérin-Lajoie, Le Blanc was built by Jasmin Construction Inc. of St. Laurent, Quebec, and features colonial red Alcan vertical siding.
- 15. Camper trucks offer mobility, comfort and easy housekeeping. This one is part of a series by Vanguard Trailers Ltd, Richmond, British Columbia.
- 16. Alcan Anolok® on U.S. Tobacco corporate headquarters. Architects: Eggers Partnership; general contractor: White Construction Co.; Aluminum fabricators: Adams and Westlake Co., Elkhart, Indiana.

### Back Cover

- 2. Designed by Butterfield & Swire Ltd, hangar has siding and door cladding of corrugated aluminum sheet supplied by Alcan Booth. Redpath Dorman Long Ltd, England, acted as designers and contractors.
- 4. Modular ceiling manufactured by Columbia Lighting Inc., Spokane, Washington, is basically made up of 6,000 lb. of Alcan sheet coil.
- 8. Architect Kawamura renovated the exterior of the Federal Hotel with aluminum grillwork fabricated and installed by Diethelm & Co. Ltd. Sheet and extruded shapes were supplied by Alcan Malaysia Berhad.
- 14. La Royale Belge Insurance Co. Design: P. Dufau, Paris and R. Stapels, Brussels. Anolok® finish extrusions by Alcan Aluminium Raeren were fabricated and erected by Chamebel, Vilvoorde, Belgium.



# Indian Aluminium Company, Limited

## Indal 1970

### Thirty-Two Years of Partnership and Progress

Indal, which built the country's first aluminum smelter, has recently inaugurated an imposing bauxite-to-finished metal complex on India's west coast.

The new, yet ancient, nation of India, with only 2.5 percent of the world's land area, supports some 14 percent of the world's people. Its population of about 550 million is larger than that of any other country except China. To feed its millions and to provide them better living standards in a setting of old cultures and traditions, India has been making strenuous and successful efforts in agricultural development and industrial growth. International agencies and other countries have provided support to India's own strivings.

Playing its part in India's new industrial life has been the modern metal, aluminum, thanks to the local availability of bauxite and hydro-electric power in locations suitable for aluminum production. Although consumption of aluminum is still low in comparison with countries of larger national income (0.6 pounds per capita in India in 1969, against 11 pounds per capita in Italy or Holland, for example) India has nevertheless shown outstanding growth in aluminum usage. Total consumption has grown at an average rate of about 13 percent per annum since 1950 — about double the normal aluminum growth rate in the western world and more than double the growth in the index of India's industrial production as a whole.

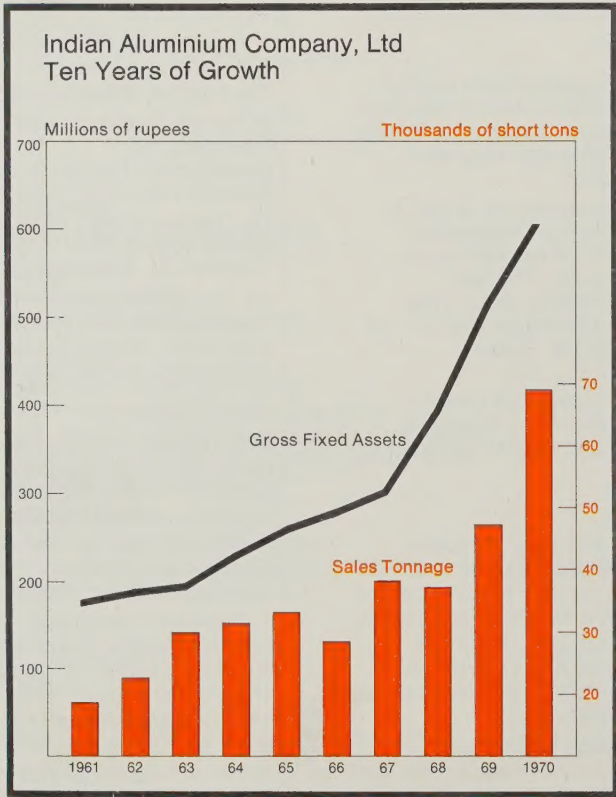
Now one of the larger national enterprises, Indian Aluminium Company, Limited, or "Indal", has pioneered much of the growth of the aluminum industry in India. First incorporated in 1938 as the Aluminium Production Company of India Limited, with Alcan as a

founding partner, it began operation in 1941 at Belur, near Calcutta, with a small sheet mill of only 2,500-ton annual capacity. Its output was to replace imported sheet products which Alcan had helped to introduce years earlier.

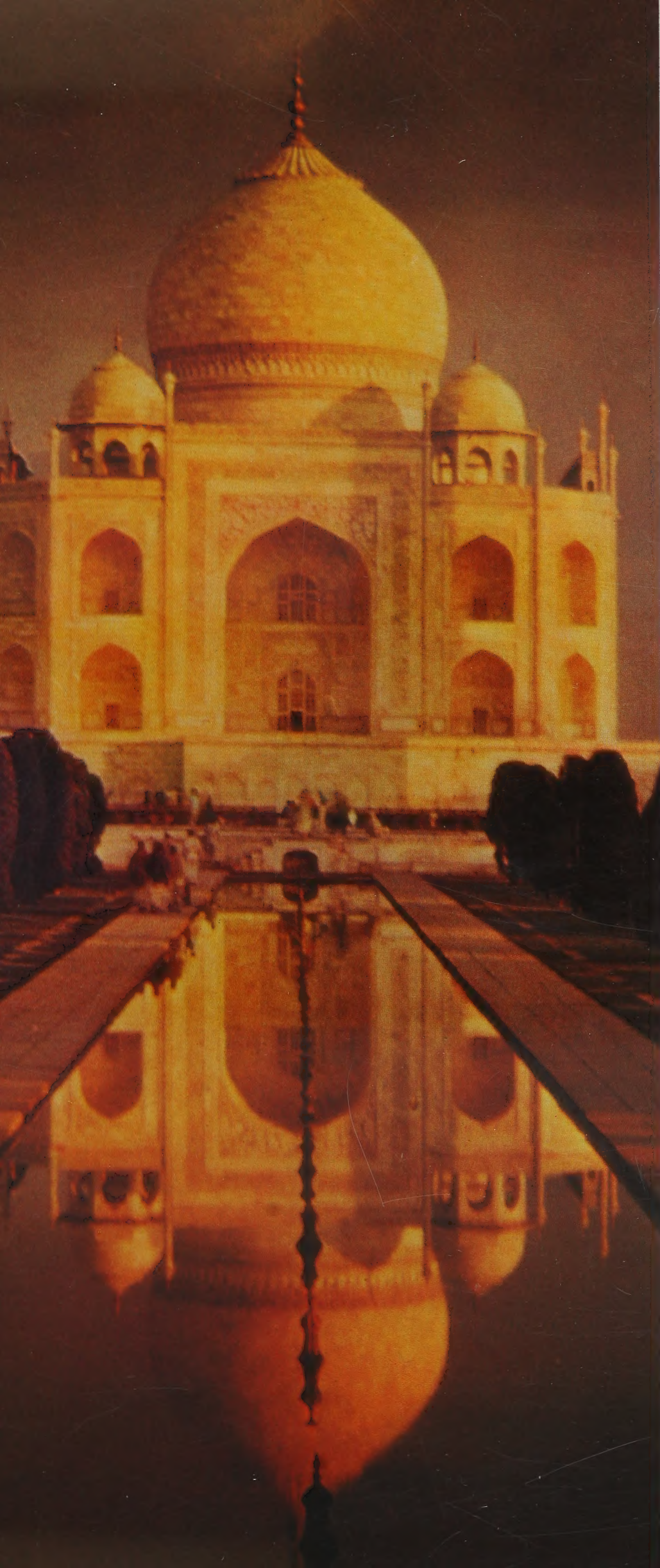
Soon after, to provide the Belur mill with an indigenous source of aluminum ingot, Indal built and commissioned in 1943 the country's first aluminum smelter of 3,000 tons at Alupuram, in Kerala, southern India. From this modest beginning, with energy and devotion from expatriate and Indian staff, with financial backing from Indian and overseas shareholders and investors, with technical cooperation from Alcan and with government encouragement, Indal has made significant strides in the past 30 years.

In November 1970, at ceremonies attended by Shri V. V. Giri, president of India and chief of state, the company commissioned its largest and most important single new project. This was the "West Coast Project" in the states of Mysore and Maharashtra, a bauxite-to-finished metal complex built over the previous three years at a cost of \$60 million.

The first stage of the Belgaum smelter is now operating at an annual capacity of 33,000 tons and will be expanded to 44,000 tons per year. The first stage brought to 73,000 tons the total capacity of Indal's three smelters, representing well over one-third of the total Indian smelter capacity of 192,000 tons which has grown rapidly to satisfy national demand in a situation where foreign exchange short-







## **New Progress in an Old Land**

**The Taj Mahal, built in the 17th Century, is now a world famous monument and spectacle.**

**Below, top to bottom:**

**Aluminum ingot in the outdoor storage yard of the Belgaum smelter, with its own alumina plant in the background.**

**New housing accommodation for Belgaum employees.**

**Indal's first alumina plant at Muri, in the State of Bihar, supplies the earlier smelters at Alupuram and Hirakud.**





# Indian Aluminium Company, Limited

A leader in market development, Indal introduces new aluminum product technologies in India.

The President of the Indian Republic, Shri V. V. Giri, unveils plaque at inauguration of West Coast project. Chairman of Indal, H. V. R. Iengar, is at right.

Official platform party at Belgaum opening as the President of India speaks. Nathanael V. Davis, president of Alcan, represented the Company.

ages have always ruled out reliance on ingot imports. The Belgaum smelter has been designed to permit ready expansion to 110,000 tons when justified. The alumina plant at Belgaum, and the bauxite operations, about 35 miles away in the state of Maharashtra, can also be readily expanded.

By inaugurating its west coast project, Indal in effect duplicated a similar integrated production complex it had earlier built on the eastern side of India. There, in the late 1940's, Indal opened bauxite mines and an alumina plant in the state of Bihar where today it produces close to 86,000 tons of alumina per year. Not far distant, in the 1950's, Indal undertook the construction of its second smelter, based on the purchase of power from the Hirakud hydroelectric project in the state of Orissa. The first stage of this smelter began operation in 1959 and the second in 1961, for a total capacity of 22,000 tons of ingot.

Indal is also the principal fabricator of aluminum and converted about 45 percent of its 1970 ingot production into sheet, extrusions, rod, foil and paste for Indian industrial uses. The company has been a leader in market development, adapting to Indian needs many product technologies developed by Alcan and other western marketers.

Indal's fabricating plants include the original Calcutta sheet mill, now expanded to 20,000 tons per annum; two extrusion presses adjacent to the Alupuram smelter in the south; a paste and powder plant and a foil plant at Kalwa, near Bombay. To further integrate the west coast project, a 15,000-ton sheet mill is being built at Taloja, near Bombay.

After Indal had become nationally viable and earning a profit, it was converted in 1945 to a public company and a portion of its capital offered to Indian investors. At the end of 1970 Alcan Aluminium Limited held some 65 percent of the Indal shares and more than 6,000 Indian public shareholders held the balance. The chairman of the company and two-thirds of the directors are Indians. Of the total management and staff, only the managing director and the treasurer are presently non-Indian. Many of the Indian staff members have had opportunities for training in Alcan plants outside India.

Since the start of the first major expansion in 1957 at Hirakud, Indal's investment in production facilities has increased almost six-fold, from the equivalent of \$18 million to the equivalent of \$103 million at the end of 1970.

Its net earnings during this time have increased almost ten times. During this period Alcan's return on investment was about 8 percent and cash dividends received amounted to the equivalent of \$15 million. To aid rapid expansion, Alcan has reinvested in Indal almost the entire sum received as dividends during this period.

The financing of Indal's growth came from various sources in India and overseas. The major sources of the funds were: Alcan 12 percent, Indal's net cash generation 42 percent, equity and debt issues in India 40 percent, and international lending agencies 6 percent. These agencies are the Export Development Corporation of Canada for Canadian funds and the Export-Import Bank of the United States for United States funds.

## Indal's Record of Growth

*in millions of U.S. dollars*

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Gross Revenues	21.1	22.1	29.4	31.0	34.1	26.2	28.4	27.8	34.6	47.0
Adjusted Net Income*	2.4	2.6	3.8	5.8	4.7	1.9	2.5	1.8	4.2	4.6
Dividends Paid	1.3	1.9	1.7	2.2	2.4	2.2	1.7	2.0	2.4	2.2

\*Income figures for 1963 and 1964 have been adjusted for extraordinary exchange losses on long-term debt and, in 1966, for exchange loss on devaluation of the rupee.



In typical Indian design, aluminum foil printed at Kalwa mill, near Bombay, fills modern uses.

Inset, upper left: Indal's sheet rolling plant at Belur, near Calcutta.

Above, top to bottom:

Mining operations in the state of Maharashtra form part of Indal's new West Coast project.

Pot-room in Indal's oldest smelter at Alupuram, in the state of Kerala.

New buildings of the State Bank of India, New Delhi, employ exterior aluminum applications.



